

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



# Gleanings in Bee Culture

FEB 23 1911

VOL. XXXIX

FEBRUARY 15, 1911

NO. 4

Editorial  
Stray Straws  
Siftings

Bee-keeping in the Southwest  
Conversations with Doolittle

In Memoriam of D. A. Jones  
Necessity of Wired Combs for Shipping  
Box Hives Prohibited in New Zealand  
Territory in Idaho Overstocked  
Moving Short Distances Any Time  
Solid Combs versus the Winter Nest  
Nectarless Flowers  
Large versus Small Hives  
Italians or Blacks  
Willow-herb and Ras berry of Michigan  
Bee-keeping in the Highlands of Mexico  
Bee-keeping on an Island Naval Station  
The Narrow-leaf Cottonwood of Colorado  
European Foul Brood  
Bee-keeping as a Hobby  
Lime in a Celler does not Dry the Air  
Prices of Honey in Texas  
Bees Transferring Larvae  
Bee-keeping in the Sugar-cane Regions  
Climate of Great Britain and United States

Heads of Grain

Our Homes

E. R. ROOT

J. L. BYER

ISAAC HOPKINS

R. D. BRADSHAW

CLINT F. PULSIFER

C. C. MILLER

JOHN H. LOVELL

HARRY LATHROP

W. C. MOLLETT

E. D. TOWNSEND

O. B. METCALFE

W. A. PRYAL

WESLEY FOSTER

F. B. CAVANAGH

F. DUNDAS TODD

F. L. HUGGINS

M. E. PRUITT

H. BARTLETT MILLER

ARTHUR DROSSAERTS

FREDERICK MARTIN

# A MAIN POINT OF DISTRIBUTION!

NATURALLY the center of our large export business, and logically the source from which a majority of Eastern Bee-keepers expect their supplies to come, our NEW YORK BRANCH has been made A MAIN POINT OF DISTRIBUTION for all goods in the big ROOT LINE. Equipped for service in the fullest meaning of the word, well stocked, well managed, familiarity with every appliance for successful bee-keeping and the high-ways and byways of shipping, here, as perhaps at no other point are we thoroughly prepared to care for the wants of our Eastern bee-keeping friends.

## 1911 Supplies and Stock.

We have a complete line of all goods listed in the ROOT catalog, and carloads of fresh-stock goods come on continually from our factory. The capacity of our river-front warehouse is about twenty carloads. Orders for special-sized goods may be sent here—and we will order same from our factory to be shipped in car to New York and we will re-ship from here, thus saving an item on your freight charges. When ordering goods, be specific. Try to use our "KEY TABLE" as much as possible in specifying hives or parts of hives ordered. If not familiar or uncertain of articles ordered or letters representing some of our goods, give illustration and page number. :

## Shipping Facilities.

Insure yourself of quick delivery by sending your orders to New York. Here is the terminal of nearly all railroads—north, west, south, and the main steamship lines whereby we can ship goods direct to you without change or delay. All express companies call at our warehouse daily, thus assisting us in serving you. Our facilities for shipping by freight, express, and boat are truly unexcelled. Avail yourself of this opportunity of quick delivery and low shipping charges which you certainly will obtain by ordering your goods of the New York Branch of The A. I. Root Co. : : : :

## Packing.

We do not charge for packing, boxing, or delivering to freight offices in New York or Hoboken, N. J. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B. New York. If no agent at your station, notify us and we will prepay, and bill charges after shipment. Often during the busy season much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what charges will be from New York. : :

**Careful Attention and Prompt Service is Our Aim. We Try to Ship Mail and Express Orders the Day They are Received. Freight Orders are Filled in Order of Receipt. No Order is too Small or Large for Our Personal Attention.**

**OUR LOCATION.**—We are located on 6th floor of the Evening Post Building, 20-24 Vesey St., in the downtown district. Our office is convenient to surface, subway, and elevated stations and to all downtown ferries. Here you will find well-fitted display rooms, with complete line of supplies, booklets, etc., always on exhibition, and our manager or attendant always present to explain our appliances and discuss the subject of bee-keeping. You and your friends are always welcome.

**REMITTANCES.**—Remittance with orders should be made by draft, check, postal money order, express money order, or stamps. Do not remit in currency or coin, unless registered, as it often goes astray. We do not care to ship C. O. D.

Order your supplies early. Do not wait until you are in a rush for them. Order now. We want your acquaintance.

**Our Manager** at the New York branch is thoroughly familiar with every appliance required for successful bee-keeping. His knowledge of outfits for beginners will be found especially beneficial to suburbanites who may want to engage in bee-keeping on a large or small scale. You will find him always willing and ready to make his services of value to whoever seeks his assistance.

**Export Orders.**—We pay especial attention to all orders for export. For the use of foreign customers we can furnish catalogs in Spanish and French.

**THE A. I. ROOT COMPANY,  
NEW YORK CITY.**

Phone Cortlandt 543.

603 Evening Post Bldg.,

20 Vesey Street.



# Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. Root, Assistant Editor

E. R. Root, Editor

A. L. BOYDEN, Advertising Manager

A. I. Root, Editor Home Department

J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX

FEBRUARY 15, 1911

NO. 4

## Editorial

### THE WINTERING OF BEES.

So far the winter has been very favorable for outdoor wintered bees at least; and where it is cold enough we do not see why the bees should not be doing well in repositories. But a winter like this, in the region south of the great lakes, is rather too mild for the best results in cellar wintering.

We are sorry to report that our new Canadian correspondent, Mr. J. L. Byer, instead of recovering from a severe attack of the grip that he had during the fore part of January, had a relapse, and is now seriously ill. Mrs. Byer writes that it will be some time before he will be able to do much reading or writing. We are sure that our friend has the sympathy of all our readers, and we sincerely wish that his recovery may not be long delayed.

### TENNESSEE BEE-KEEPERS' ASSOCIATION; FOUL-BROOD LEGISLATION.

THE Tennessee Bee-keepers' Association will hold its regular annual meeting at Nashville, in the rooms of the Nashville Board of Trade, on Saturday, March 11. In this connection we are pleased to announce that the Tennessee bee-keepers are making a strenuous effort to get a foul-brood law. Those interested are respectfully requested to write their Senators and Representatives, if they have not already done so, urging their support of the bill. For particulars correspond with J. M. Buchanan, Franklin, Tenn., Secretary of the Tennessee Bee-keepers' Association.

### CORRUGATED PAPER AND BETTER SHIPPING-CASES.

REFERRING to our editorial on page 745, Dec. 1, Mr. S. D. House, an extensive comb-honey producer of New York, writes:

I have read your comments upon no-drip cleats vs. corrugated-paper bottoms for shipping-cases. I wish to add a hearty endorsement to those comments, and will offer a few suggestions: That the cases be made of  $\frac{1}{2}$ -inch thicker end-pieces, and long enough to stand at each end a piece of corrugated paper which will make a cushion for sections endwise; also use nothing wider than a two-inch glass, and a cover to be nailed on in place of a sliding cover. We need a firmer shipping-case.

Camillus, N. Y., Dec. 31.

S. D. HOUSE.

Mr. House has had a large experience in the production and shipping of fancy comb honey. This whole question is one that

should receive a thorough discussion, and we therefore invite suggestions from others.

### MORE ABOUT "EXTRACTED HONEY."

SINCE our editorial in the Jan. 1st issue on the "Nomenclature of Honey," we have received quite a number of communications on the subject; but we question the wisdom of using them for fear we may only waste space over a matter that, perhaps, can not be remedied. Moreover, almost all of the communications that we have received are conflicting, one suggesting one name, and one another. Several writers, however, have been unable to see why the term "liquid honey" would not fill all requirements; but honey in the comb is liquid, while very often that in bottles and cans is candied solid; hence if the term "liquid honey" were used the label would often be a misnomer.

After all, why not do away with the qualifying adjective on labels and let the liquid thrown from the combs be known simply as honey—just what it is? Bee-keepers could continue to speak of honey-extractors and extracted honey among themselves, or when explaining how the honey is separated from the combs, etc.; but the adjective, since it is only misleading, might better be omitted entirely from all labels. To the consumer, then, the product from the hive would be known as honey, granulated (not *candied*) honey, comb honey, and bulk comb honey.

The term "extracted" honey is very misleading, and not at all appropriate. There are relatively few *bee-keepers* in the world, compared to the number of *consumers* of honey, and among this latter class the term "strained honey" has been used for years, and probably will be used for years to come, even though bee-keepers continue to use the term *extracted* honey. The average consumer, to-day, does not yet know what extracted honey is—has never heard of it, in fact. When honey is mentioned in some recipe, as it occasionally is, in a cook-book or magazine, *strained* honey is invariably specified. What's in a name, any way? Perhaps not much; but it does seem funny to think of customers, year after year, asking for strained honey and receiving extracted honey.

We can not forbear giving a short extract from one of the articles received that we think hits the nail squarely on the head.

Since the introduction of the so-called honey-extractor; there has been a constant effort on the part of bee-keepers to change the public's idea from "strained" to "extracted," with but poor success. I have had some experience in selling honey, extending over a good many years, and in

the majority of instances, when a sample of liquid honey is shown, people use the same expression now that they did fifty years ago—"Oh! its strained honey!"

#### COMB HONEY IN THE CRANE CORRUGATED-PAPER SHIPPING-CASES.

We received quite a shipment of nice comb honey packed in new corrugated-paper shipping-cases. Although the honey had been pretty badly banged around inside of the car, the cases being piled up on end, on the sides, and any old way, yet the honey, except for some breakage, reached us in fairly good order.

We believe that the greatest feature of protection in these corrugated-paper cases is the cross-partitions, which are a little higher than the sections are deep. Whether paper or wooden cases come to the front in the future, one thing we are reasonably sure of; and that is, that cross-partitions of corrugated paper will be a necessity in either style of case. Poultrymen have for years used packing-trays having a separate compartment for each egg. The glassware men, and those selling any kind of bottled goods, have for years used cross-partitions of corrugated paper, to protect their goods. It seems strange that we bee-keepers have been asleep so long that we should just now wake up to the importance of shipping our No. 1 and fancy comb honey in better cases.

#### WINTER-KILLING OF CLOVER; PROSPECTS FOR NEXT SEASON.

THE winter in this section of the country was pretty snug and cold, with a large amount of snow on the ground until the 11th of January, since which time the ground has been bare, with warm and cold spells, rain, sleet, and a little snow scattered in between until yesterday, Feb. 6, when we had a very heavy fall of snow. We have been fearful that such weather would be hard on clover, but some old farmers with whom we have talked say that the ground has not been wet enough nor the weather cold enough to do very much damage as yet. The heavy blanket of snow we now have, and which we find is quite general over the Northern States, will protect us, as long as it lasts, at least. We are in hopes that our "January thaw" is over.

It may bewell at this point to define what is winter-killing of clover. Different authorities do not quite agree as to what causes clover to die or disappear during the winter. The same conditions that affect wheat adversely also affect clover. It is generally stated that a *quick hard* freeze, followed by a rapid thaw, and this followed by another quick hard freeze, is more destructive to clover than a *gradually* freezing and thawing temperature followed by continued cold. It is also generally agreed that, when the ground is covered with snow, and stays covered almost throughout the entire winter, conditions are the very best for clover. If the ground has been frozen, and snow falls

on it, the snow, says the old farmer, "will draw the frost out." Strictly speaking, this can not be true; but a fine blanket of snow will so protect the ground that the heat of mother Earth beneath will draw the frost out of the upper crust. All the snow does is to prevent the further action of the atmospheric cold.

So far, taking conditions throughout the country as far as reported, there has been no destructive winter-killing; and if conditions are not unfavorable from now on we ought to have a fair clover yield the coming season, as the soil hereabouts, at least, is soaking wet. We have have had two off years; and on the principle that three bad seasons never come together we may hope that 1911 will break the spell.

#### THE HONEY MARKETS; GOOD TABLE EXTRACTED SCARCE.

THE wholesale market is practically bare of first-quality table extracted honey. There is a good supply of dark and off grades, but the best grades are conspicuous by their absence. There is plenty of fine No. 1 and fancy *comb* honey on the market; and it is doubtful whether it will be all cleaned up before the new crop comes on.

It is not at all strange that more bee-keepers should be turning their attention toward the production of extracted honey. The inexorable law of supply and demand will compel a large number more to change from comb honey to the production of extracted honey; but it would be folly to go to the other extreme. The average person who has been producing comb honey would better produce both comb and extracted. Many localities favor the production of the two kinds on the same hive. In other words, the seasons are so short and slow that some bee-keepers find it advisable to use a shallow extracted-honey super to coax the bees upward, and then, when they are once started there, to put a comb-honey super under it. In this way both comb and extracted can be produced on the same hive. If the season begins to taper off, the extracting-super can be removed, thus compelling the bees to devote all their attention to filling and capping over the sections in the comb-honey super or supers. If any of the extracting-combs are not quite filled, it is a matter of small importance.

#### COMB HONEY AND COLLIER'S WEEKLY.

In our issue for Dec. 1st, page 745, we stated that Louise Eberle, in an article that she had written for *Collier's Weekly* on the subject of faking food, said, among other things, that the imitation of maple syrup was not "anywhere nearly the masterpiece that is turned out in honeyless honey in a beelless comb." A good many of our subscribers wrote us, protesting, and asking if we could not secure a retraction. Accordingly, on page 745, as above, we urged our subscribers, one and all, to write to *Collier's*



*Weekly*, saying that the statement in question was not only misleading but absolutely untrue. Well, it appears that the letters that poured into Collier's office and to the writer of the article came in such numbers that Miss Eberle finally wrote (as if she wished us to call the dogs off), saying she was convinced that there was no such thing as an imitation comb honey. As it would be simply impossible for her to write to all who wrote her, she asked us to make this statement for her, which we gladly do. In the mean time, *Collier's Weekly* published a very satisfactory retraction. It is very evident that it is convinced that there is a bee-keeper or two in the United States who will fight for their rights.

We may say that we have taken *Collier's Weekly* for a number of years. Its fearless stand for the right, its fight against the liquor-traffic and adulterated foods and drugs, have led us to believe that the paper ought to be supported; when, therefore, there appeared a statement in the columns of such a magazine to the effect that comb honey was manufactured, we knew it would do a great damage to the honey business unless a correction were made. We did not ourselves write to the paper, believing that the statement of our readers would have more effect by the mere force of numbers. We did, however, send two of our representatives to Collier's office, and, after a satisfactory interview, they came away, convinced that the paper would do what is right about it.

So it goes. We have now, with the help of our readers, secured retraction from all of the standard books and papers that have unwittingly published that old comb-honey canard. We are wondering where the fake story will bob up again.

#### THE INDIANA STATE BEE-KEEPERS' CONVENTION AT INDIANAPOLIS, FEB. 2.

The Indianapolis convention was a very enthusiastic gathering of bee-keepers; and, considering the very short notice, the attendance was unusually large, or at least above the average of the State bee-keepers' conventions.

The bee-keepers of Indiana are certainly to be congratulated on having such efficient leaders. State Entomologist Benjamin W. Douglas, also a bee-keeper, is leaving no stone unturned to advance the cause of apiculture within the borders of Indiana. Geo. F. Demuth, an appointee under Mr. Douglas, is one of the most capable and efficient foul-brood inspectors we have ever met. Probably no State in the Union is giving the question of bee-keeping, especially the matter of handling bee diseases, more careful and thorough attention.

Geo. W. Williams, the newly elected secretary, Mason Niblack, and Mr. W. S. Pouders, were most active in securing the passage of the Indiana foul-brood law, especially Mr. Niblack, who understands all the ins and outs of legislative machinery.

There were present at this meeting two men in particular who have come to be known all over the United States. One of them is F. B. Cavanagh, one of the most progressive bee-keepers in the United States, and Jay Smith, who has the faculty of seeing the funny or bright side of bee-keeping. He was generally called the "Jay" in the Indianapolis convention.

It would be impossible for us, owing to the limited space at our command, to give a full report of this convention. Nor will it be necessary, for a full stenographic report will be issued later. We may say, however, that the work of foul-brood inspection under Entomologist Douglas and Inspector Demuth was most strongly indorsed by the convention.

Mr. Douglas gave a very interesting talk on the anatomy of the bee, illustrated by means of stereopticon slides. He is a tremendous worker and a pusher. We do not believe there is a man anywhere in the country who has done more or better work in combating noxious insects and giving valuable information to the farmers than Mr. Douglas. His last annual report, consisting of 265 pages, and many fine illustrations of actual field work is a credit to any State.

Mr. Demuth gave an extended address on some lessons he had learned in inspection work in Indiana. In regard to the treatment of disease, while he recognized that there were several good treatments he thought it much safer for the average bee-keeper, at least, to use only the shaking plan. By "shaking" he meant either shaking or brushing to get the bees on frames of foundation. While it was possible to treat European foul brood without destroying the combs, he thought it much better and safer for the average person, at least, to clean out all possible sources of infection.

In this connection it is proper to state that Mr. Demuth has done much to advance the cause of bee culture in his State. In the report of the Entomologist, Mr. Demuth occupies 30 pages in giving plain directions for making money out of bees.

The success of this meeting was such that the convention unanimously passed a resolution inviting the National Bee-keepers' Association to hold its next annual convention at Indianapolis. Indianapolis is a great railroad center, and also the center of a large number of enthusiastic bee-keepers. We do not know of any other place in the Union that would draw a larger local attendance; and as the city is so accessible from all points of the country, there would doubtless be a large number of bee-keepers from out of the State. It is only 183 miles from Chicago; 276 from Detroit; 281 from Cleveland, and 111 from Cincinnati. It is in the heart of some of the very best white-clover bee-country in the whole United States; and we feel sure that the officers of the National Association will make no mistake if they give Indianapolis favorable consideration.

## Stray Straws

By DR. C. C. MILLER, Maricopa, Ill.

NOT CONTENT with making a success of the *Irish Bee Journal*, its jovial editor, Rev. J. G. Digges, now sends out the first number of *Bee-keepers' Gazette*. It is beautifully gotten up, but has one bad spot, where it says GLEANINGS is a bi-monthly. Instead of appearing only once every two months, GLEANINGS appears four times as often, being a semi-monthly.

"LAYING WORKERS do not lay in each cell, do they?" page 772. No; they scatter, laying here and there, as often as not more than one egg in a cell, and, likely as not, sticking the eggs on the sides of the cells. A queen-cell is their first choice, in which they may lay a dozen eggs; next they prefer drone-cells. But I have known at least one case in which the eggs were laid as regularly as a queen would lay them.

FRANZ KOEHLER, *D. Imker*, 326, finds that worker-cells built by the same colony vary in size from  $17\frac{1}{4}$  to 20 in 10 centimeters (4.44 to 5.08 per inch), and drone-cells vary from  $13\frac{1}{2}$  to 16 in 10 centimeters (3.43 to 4.06 per inch). The central, first-built combs of a swarm have the largest cells diminishing in diameter as the work advances. So he thinks uniform foundation not just the thing. I wonder.

"THE STAPLES space only the top-bars and not the end-bars," p. 25. Surely they can space the end-bars, and ought to. [We had in mind the kind of staple-spaced frames usually sold by dealers. There is nothing to prevent any one from putting additional staples in the sides of the end-bars or in the bottom-bars. In either case the staples would have to be driven the right depth into the wood to secure the right spacing.—ED.]

J. E. CRANE, p. 34, I'm with you in preferring hot syrup; but *the right kind* of "percolator feeding" takes ever so much less time and labor than hauling syrup ten miles away. Here's the way I've done lots of it: I took to the out-apiary dry sugar in bags; put the dry sugar into Miller feeders on the hives, leaving them uncovered; then poured a pint or so of water, hot or cold, into each feeder, still leaving them uncovered (no robbing ever started); then filled up with water, covering each feeder as I went.

EDITOR HUTCHINSON says, *Review*, p. 25, that he would never think of producing comb honey without honey-boards. I used them for years; and for years, with thick top-bars, I have done without them, and I wouldn't think of going back to them. It is true that some comb will be built between top-bar and section; and it is true, as he says, that "cleaning off the burr-combs in the spring does not prevent the bees from build-

ing another set." But if cleaned off every year, or even once in three years, they will never be very bad, whereas if never cleaned off they will become worse every year. Between top-bars and honey-board they became so bad I had to clean them off; and if never cleaned off I *think* they would become so bad that in time the bees would build between the honey-board and sections.

My assistant says: "Does Mr. Hutchinson know what he is talking about? Why, I wouldn't go back to honey-boards with the killing of bees, the solid mass of honey, and the dripping, nasty, sticky, mussy mess—oh!" But I can't give the disgusted expression on her face.

OLD COMBS should be melted up *if* the cells have become too small for the young bees, p. 60. That does not assume that the cells do become too small, it is true; but what I'm afraid of is that the beginner will understand that it is a possibility. Indeed, I happen to know that a common question among beginners is: "How soon should combs be renewed because the cells are too small?" and it is of some importance that they know the truth. If there is any such thing as the cells becoming smaller, the process is gradual; and if they are too small when twenty years old they must be smaller at ten years than when first built, and at least a little smaller when a year old; and so for the very best results combs should be renewed annually. Now, what I have been taught to believe, and what the beginner should know, is this: Cells do not become smaller with age. The bees dig away the cocoons at the side; but there is a constant accumulation at the bottom of the cell, so that the septum may become  $\frac{1}{8}$  inch thick or more. That would make the cells shallower; but to compensate for this the bees constantly prolong or build out the cell-walls, so that there never is any need to melt combs because the cells are too small. Melting combs on account of foul brood is a matter entirely aside. [Some years ago, when this matter was up for discussion, Mr. R. Wilkin, just before he died, said that he had combs that were thirty years old, and that the bees reared from them were perfectly normal in every respect; that he had never melted up any of those combs; and that he prized the old ones because they were strong and tough.

And yet, on the other hand, there are those who say that some strains of bees will not remove the excess of cocoons, and that, consequently, the bees are cramped in their growth. We believe, however, that we may safely tell beginners that they do not need to melt up their combs.

There is a question, however, whether bees tear out the cocoons at certain intervals or whether they gnaw the combs down, wax and all, and reconstruct them. While we incline strongly to the tear-out theory, Mr. Cavanagh, of Hebron, Ind., with whom we talked after the Indianapolis convention, said he believed the bees gnawed the combs down, wax and all, and rebuilt.—ED.]



## Siftings

By J. E. CRANE, Middlebury, Vt.

Those illustrations on page 757, Dec. 1, of Mr. Holtermann carrying hives are certainly fine. They show not only how to carry a hive but any other heavy weight. They also remind me of a statement made at the Albany convention by the editor of the *Canadian Bee Journal*, that "a man can be a bee-keeper and a gentleman."

That picture of a California apiary, page 694, Nov. 1, looks good on paper. We have one symmetrically arranged in a similar way; but what a vexation it has been to me the past season it would be hard to tell. I made a large number of new swarms with laying queens; but I found it very difficult to get those young queens fertilized; and when I came to look over the yard for winter I found ten or twelve queenless colonies, while my other yards would not average over two to the same number of colonies.

"Do we need a fool-killer?" Well, I should say we do, or some one or something to kill foolishness. We bought some honey in the fall, and furnished cases and explained how it should be packed. As it was to go a long distance, with several changes of cars, we asked to have it put up in crates, and explained how. Imagine our surprise to find the corrugated cushion board in the case on top of the honey instead of underneath, and the cases packed so the crates would have to stand on end, or the combs in the cases lie in a horizontal position!

R. F. Holtermann, page 683, Nov. 1, says his bees are in winter quarters (outer cases) with an eight-foot fence around them. Now, what we should like to know is, why his bees are not in that scientifically constructed bee-cellar we saw illustrated a few years ago. Since we saw that illustrated in GLEANINGS we have had to struggle with our weak human nature to keep from breaking the command, "Thou shalt not covet." [We understand that Mr. Holtermann intends to be away from home practically all winter, and he thought his bees, as they would have to be left alone, would be safer out of doors on separate stands than in the cellar.—ED.]

The editor inquires, page 746, Dec. 1, 1910, whether we want to court advanced freight rates on honey. I think we do—at least some of us. But have we really considered what this means? Our freight rates in the past have averaged about 50 cts. per 100 or more. Suppose the rate is increased to 1½ times the present rates, it would cost us from \$25.00 to \$100, or even more, annually.

Is there danger of the rates on honey be-

ing raised to 1½ times the present rates? Well, I have known at least one road that not only raised the rate fifty per cent, but doubled the rate, and all because a bee keeper who shipped his honey to market tried to collect damage for broken honey, or, perhaps I should say, succeeded in doing so.

The discussion of a ten-frame vs. an eight-frame hive is certainly timely. What the editor says, page 713, Nov. 15, is worth remembering: "We can always make an eight out of a ten frame hive, but we can not convert an eight-frame hive into a ten-frame hive except by the awkward manipulation of another eight-frame body." For one, while I use eight frames almost exclusively for comb honey, I often find it convenient to use a larger brood-chamber with combs outside the division-board for storing extra combs of honey while honey is coming in fast; or for placing a comb of honey for extra feed in spring. My brood-chambers will hold eleven frames—the most of them.

There has been some discussion in GLEANINGS as to the utility or value of dilute carbolic acid in preventing bees from taking poisonous mixtures used in spraying fruit-trees when in bloom. While in Hartford, Ct., last September Mr. A. W. Gates, a very intelligent bee-keeper and queen-breeder, and one of the foul-brood inspectors for Connecticut, informed me that he had used a strong solution of carbolic acid in examining hives and apiaries for foul brood when no honey was coming in, to prevent robbing. He used a cloth wet with the solution, or sprinkled some of it in front or about the hive, with the result that no robbers followed him or tried to enter the hives after they were closed. Later in the fall I used it with very satisfactory results. [We have an article on this subject that we expect to use in our April 15th issue.—ED.]

On page 695 Geo. Shiber discusses the proper size for a package of honey. Now, it seems to me that for the retail trade we had better not be very particular. The fact is, some want a good deal of honey while others want but little at a time, so we try to accommodate the buyers, and have a far larger trade than if we tried to force a uniform package on all. A few days ago a gentleman called and bought a quart of extracted honey for 40 cts. He called again yesterday and wanted a gallon—said his children liked it on bread for school lunch in place of butter. I brought him out a gallon can of honey. He inquired the price. I told him it was \$1.50 per gallon. He evidently would have preferred it in quart cans; but when he found he could save ten cents by buying a gallon can he took that size of package.

What Mr. Shiber says on requeening is well worth remembering. The facts are, young bees accept a young queen much more readily than old ones.

## Bee-keeping in the Southwest

By LOUIS SCHOLL, New Braunfels, Texas

### SCHOLL'S FRAME-NAILING BLOCK.

A number of frame-nailing devices have been described; but our own suits us better than any thing else that has come to our observation. It is very simple in construction, made of two pieces of wood as shown, with two pieces of heavy tin or galvanized iron bent to serve as a holder for the frame ends. This block is set in front of the operator, preferably on a low work-bench, an end-bar placed in each one of the holders as

can boys, there was not a single one put together wrong. Yes, we can go further, because, ever since we have adopted this way of holding the frame ends there has been no trouble about getting them in the right position. And this, together with the handy frame-nailing block, makes the nailing-up of the frames very easy indeed.

### NAILING SUPERS RIGHT.

There has been considerable trouble with the warping of the hive and super ends and sides after they are out in the weather for some time. Especially is this so in our southern and western localities where the weather seems to "have it in" for every thing, and this warping out of shape of the

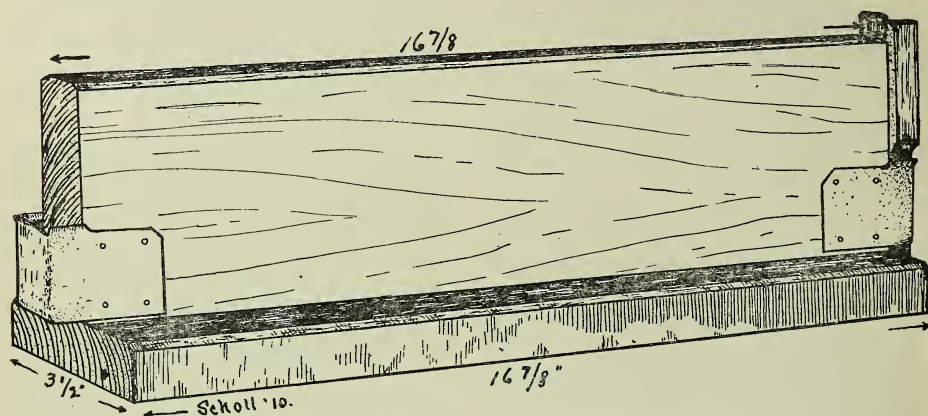


Fig. 1.—Scholl's frame-nailing form.

shown, and the top-bar nailed on from the top. Then the whole is removed, turned upside down, and set on the work-bench in front of the block so that the frame rests on the length of the top-bar, and then the bottom-bar is nailed on, completing the job.

To assist in nailing the frames always with the V-edge of the end-bars in the right way we practice taking up the first end-bar to be placed in the nailing-block with the right hand, and in such a way that the V



Fig. 2.—How to pick up an end-bar.

vented. Last year, out of over 7000 such frames, nailed up by two very young Mexi-

hive parts is serious in that the leaky hives caused thereby make robbing easy. Some of the newer goods are made so that there is not so much trouble as with the older way of making the hives and supers; but since many are still so made, and thousands of old ones are in use that need repairing at some time or other, we have struck on the idea as illustrated in the two engravings here shown. We have gone over hundreds of supers and hive-bodies and renailed them in the proper way, and thus obviated many of the leaks.

We term this the *proper way*. As seen in figure 3, A and C shows part of a wrong-

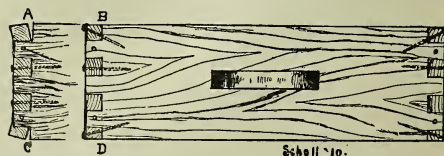


Fig. 3. Wrong and right way of nailing a super.

ly nailed super. This is the most common way in which the supers are nailed—two nails driven in the two dovetailed ends of the sides of the super. This allows the



pieces to warp, leaving the leaks as shown. The *proper* way is shown in B and D, where three nails are so driven that there is little chance for warping, and the super remains bee tight.

The old way of cutting the hive and super rabbets allows them to warp out in many cases, and often they are broken out in handling. To obviate this serious matter we drive three slim nails into the rabbet, Fig. 4, slanting them so that they will have a tendency to draw the rabbet to the inside,

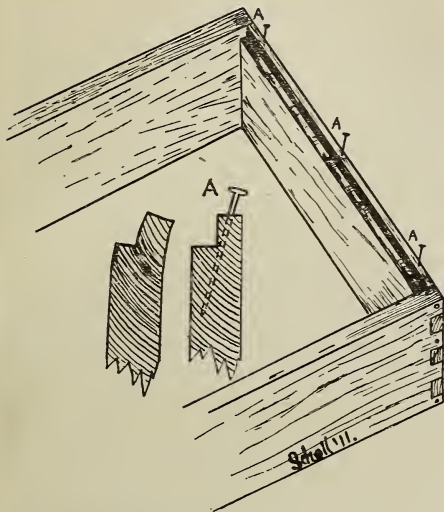


Fig. 4. How to prevent the rabbets from splitting.

thus bracing them exceedingly well. Of course, this latter is extra labor and expense, but we have found that it pays, especially if the work is done by cheap labor. Several young boys can be employed for this work very profitably.

#### THE SIZE OF WINTER ENTRANCES.

We have recently found that sometimes the size of the entrance to a hive makes considerable difference during severely cold weather. Two medium nuclei were wintered each in a single shallow hive-body, and each with sufficient stores. One of these had an entrance  $\frac{3}{4}$  inch deep by the full width of the hive, and the other had the same depth of entrance, but it was contracted to only  $1\frac{1}{2}$  inches wide. Although the nuclei were in the same condition, located in the same way, and near each other, the one with the large entrance succumbed while the other came through in fine condition. When found a few days after the most severely cold spell that we have had for a number of years, the bees in one nucleus were stiff and starved, while the others were lively and in the best condition. Each had just the same amount of stores in the same shape about the cluster; but in one the bees were kept warm enough so that

they could make use of the stores; in the other they were not.

The proof that they were simply starved to death, and not killed by the cold directly, we have in the fact that many of the apparently dead bees were "thawed" out again when placed in the warm sunlight; but, being too far starved, they soon succumbed entirely.

This would show that, even with sufficient stores in immediate reach of the bees, a severely cold spell might put the cluster in such condition that the bees can not help themselves and prevent starvation. How much there is in this we do not know, especially since we have never had such experiences here in this milder climate. Perhaps it pays to look after our winter entrances better than some of us do—not in that there might be a total loss to the colonies, but the size of the entrances may make a material difference in the welfare of the colonies.

#### WHO FIXES THE PRICE OF HONEY?

This is another respect in which we venture to say we are ahead of the bee-keepers of the North. From the many articles we have read pertaining to Northern prices we understand that the price in most cases is set by the commission houses and by dealers who buy the honey from the bee-keeper. Why should this be so? Not in one instance since I have been in the business extensively have I asked a buyer what he would pay for my honey. It is the reverse here. The bee-keepers, or at least the majority of them, know pretty well at the outset what they are going to try to get for their honey, and the market prices are governed thereby to a very great extent. We know this is true, for the simple reason that many of the honey-buying firms make their quotations at a certain figure in the early spring, and, later, as they find that honey is hard to get at these figures on account of the bee-keepers holding at a higher price they advance accordingly; so also does the price offered by the dealers go up a certain margin every year above the figures of the previous year. It has always been a wonder to us why we should be ahead of those in the North in this respect, since it has been conceded generally that they are so much ahead of us. Taking into consideration the amount of advertising in the North, and the amount of discussion that continues to appear on the subject, the conditions of selling in the North are very different from what we are used to here. Our honey is sold quickly, as a rule, without advertising, and at our own figures. In our case it is not so much how to sell the crop as it is how to produce enough of it to fill the demand that already exists and at a good price. We receive dozens of inquiries each season for *our* price. Then we send a price list with our prices, instead of writing for prices that some firm or buyer is willing to pay, as we formerly did.

## Conversations with Doolittle

At Borodino

### SPRING DWINDLING USUALLY CAUSED BY POOR WINTERING.

"Last spring I had much spring dwindling among my bees, and I wondered if you could tell me how to avoid it this spring."

"The best way to avoid spring dwindling is to insure good wintering. Bees that winter well are not likely to dwindle in the spring very much."

"But don't you remember the bad spring we had last year, and how cold it kept for nearly a month after the bees had apparently got started in for a good season? From this I reason that such dwindling results from the colonies becoming chilled during these cold spells that may follow their removal from the cellar, or after they have had a week of warm weather, where they are wintered on the summer stand."

"I can not believe that there is so much in the idea that spring dwindling is caused by adverse weather conditions in the spring. From my long experience I am becoming more and more convinced that the trouble is mainly, if not altogether, an effect of poor wintering."

"But don't you think that a cold spring has something to do with this matter of bad wintering?"

"I do not desire to give you the impression that I think such adverse weather as we had last spring is not harmful to bees after they have had a week or two of weather good enough to start brood-rearing quite freely; but I do say that such adverse conditions are not the *prime* factor in spring dwindling. Such weather conditions I can consider as only secondary at most. Let me illustrate: Some years ago a part of the apiary was drifted over with snow, so that I lost sight of the hives for nearly six weeks, while the rest of the yard was nearly bare. When spring opened I found that those colonies drifted under, becoming too warm, had begun brood-rearing to a great extent, and the bees fouled their hives about the entrance with their feces, thus showing that they had contracted diarrhea. They were the first to fly when an opportunity offered. The colonies having no snow over them did not show up nearly so strong on their first flight; but after the cold bad weather of an unusually severe spring they were in good condition to breed up for the harvest, while the former kept dwindling till five-sixths of them were hardly better than nuclei, some giving up entirely."

"Again, I have noticed that, when colonies in the cellar came out and spotted the hives to any extent they would dwindle away very rapidly during April and May, while others which had their hives all clean and nice were not materially affected, even if

there were weeks of unfavorable weather during these months. Take a colony having bee diarrhea to any extent, and, though you wrap up the hive with all the material for spring protection you can think of, it seems to be of no avail; while a healthy colony standing right by the side of it, not protected at all, continues to hold its own, and often makes an increase, with the weather conditions the same in both cases."

"Do you intend to say that bee diarrhea during winter is the only cause for spring dwindling?"

"No; I do not intend to convey that impression either. But I do believe it has more largely to do with it than any other trouble, while the rank and file of our beekeepers consider this as a wintering trouble which the first flights of spring will cure. Other causes may also contribute toward spring dwindling, one, at least, of which may date further back than bee diarrhea. To illustrate again: One year when I was unusually busy building, after the basswood flow was over, the parent colonies having cast swarms were not looked at for weeks after the prime swarms issued, and it was well into September before I found time to look them over. I then found several of these colonies had failed to get laying queens through loss of their young queens in some way, so that I had some ten or twelve queenless colonies on my hands. As there seemed to be quite a good supply of bees in each of these hives, I thought by giving young queens and uniting two of these colonies together they would be fully as strong as any of the other colonies which had young laying queens in parent colonies. After being in the cellar a month these united colonies showed as large a cluster hanging below the frames as did any of the rest, and apparently wintered as well; but after their first flight it was plain to be seen that the other colonies had not lost nearly so heavily through their cleansing flight as had these; and when the cool and cold days followed, as they always do more or less, these old bees would come out and die almost in heaps about the entrance, some individual specimens even trying to fly, and then crawling as far as their legs, benumbed with cold, would let them, so anxious were they to rid the hive of their useless presence. These hives were protected better than were the others, in the vain hope of saving them; but all but two died out entirely, and that after a nice lot of brood had been got agoing from the young queens. Here was a cause for spring dwindling that was almost a year old, but did not show itself till the cool bad weather of the next spring came on."

"Then we have poor queens as the cause of this same thing—queens which the apiarist should have superseded in August of the year before; bad stores, damp hives, owing to improper ventilation, etc., all of which contribute to the death of colonies every year, while these causes are more often than otherwise wrongfully diagnosed as spring dwindling."



## General Correspondence

### IN MEMORIAM OF D. A. JONES.

The Remarkable Career of a Remarkable Bee-keeper; How he Introduced New Races of Bees; his Foul-brood Cure; his Baby Nuclei, etc.

BY E. R. ROOT.

D. A. Jones, one of the leading bee-keepers of thirty years ago, known all over Canada and the United States—indeed, we might say all over the entire bee-keeping world—passed away at his home in Beeton, Canada, on the 20th of last November. The information did not reach us until we saw the announcement in the *Canadian Bee Journal*.

Mr. Jones came into prominence in 1879, when he, together with Frank Benton, formerly of the Department of Agriculture, made a special trip to the Orient, at great personal risk, covering thousands of miles, to secure new races of bees. Mr. Jones bore the entire expense of that expedition, and after a year brought back to this country a large number of Cyprian, Holy Land, and Carniolan queens. During the years 1880 and 1881 there was quite a furore over these new races, and all the prominent bee-keepers of the world secured queens from Mr. Jones. While the Cyprians were splendid honey-gatherers and breeders, they were too vindictive—too awfully cross—to wear well either in this country or Canada. The Holy Land bees, while not so cross as the Cyprians, ran excessively to brood-rearing. It was not an uncommon thing to find Langstroth combs with every cell containing brood. The Cyprians and the Holy Lands themselves were very beautiful bees; and, while resembling Italians in the one fact that they too were yellow, yet they had quite enough distinctive characteristics, both in markings and temperament, so they could be readily distinguished. Even when crossed with the ordinary Italians their bad temper seems to go with them. On account of these very undesirable peculiarities these two races have practically disappeared from the United States and Canada. But the Carniolans have stayed with us. The bee-keeping world owes a big debt of gratitude to the man who, at an enormous cost and at great personal risk, practically settled the question for all time of the most desirable races of bees. While the Cyprians and Holy Land bees lost out in the race, the superiority of Italians and Carniolans has been established ever since. Mr. Jones, generous to a fault, never insisted that he should have the exclusive trade in the bees he brought to this country. He never was sore because others went into the business. His broad generous spirit, and the genial

twinkle of his eye, had to be experienced to be appreciated.

In the early '80's Mr. Jones was, no doubt, the leading bee keeper of Canada. He ran a series of outyards, and later on established a school of apiculture. At one time he had some two or three dozen students who went to Beeton from the United States and Canada to study bee culture under his leadership. One of these students was R. F. Holtermann, our old correspondent.

During these early days Mr. Jones' bees contracted foul brood; but he did not realize at that time the seriousness of the disease. He seemed to regard it as something that one could easily handle, and he then promulgated to the bee-keeping world what was called at the time the Jones or starvation foul-brood cure. This was an adaptation of the Quinby method of treating bees, and



D. A. JONES WHEN HE WENT TO THE ORIENT FOR NEW RACES OF BEES IN 1879.

was very similar to what is now known as the McEvoy cure. The bees were shaken off the combs into a wire-cloth cage, or box with a wire-cloth top. They were then put in a cool place so that they would consume the honey in their honey-sacs. As soon as some of the bees from sheer weakness began to show signs of starvation they were then placed in a clean hive on frames of foundation, and compelled to work out their own salvation. The old combs were burned or melted up, and the old hive disinfected.

It was later found that it was not necessary to starve the bees, because drawing out the foundation was found to be quite sufficient.

Mr. Jones was generally ahead of his times. For example, his system of queen-rearing and baby nuclei, which he intro-

duced in 1883, were similar to the systems later exploited by Henry Alley and E. L. Pratt. His baby nucleus was almost identically the same as our twin-baby nucleus of to-day. We copied Pratt, but later improved the Pratt nucleus until it was almost the same as the old Jones model.

He was the inventor of the Jones hive, the Jones uncapping-knife—a knife which may yet displace all others.

Mr. Jones' knowledge of bee lore, of the domestic economy of the hive, of how to produce extracted honey, was second to none of his day.

To give the reader an idea of Mr. Jones' progressive ideas, and how he spared neither time nor money in carrying his ideas into effect, we may state that he early saw that, in order to raise Cyprian, Holy Land, and Carniolan bees in their purity, they would have to be reared on separate islands. He therefore purchased or leased several islands in Georgian Bay. One he called Cyprus, another Palestine, and still another Carniola. On each of these islands he had a complete queen-rearing outfit and a race of bees according to the name of the island; but, unfortunately, the islands were barren, and it was necessary for him to feed his bees almost constantly. For two or three years he raised Cyprians, Holy Lands, and Carniolans on those islands; but, if we are correct, the venture never paid. It cost him enormously to keep a competent man there and necessary boats and camping-outfits, and to feed sugar to the Cyprians and Holy Lands that bred so rapidly that their owner had to feed almost continuously; but, nothing daunted, our friend kept on rearing queens on those islands.

Well do we remember the visit that we made to those island apiaries in 1884. Mr. Jones had just come from a trip to the islands when we arrived at Beeton; but he was so enthusiastic over his project that he said he would be glad to go right back with us to the islands. We took a hundred-mile ride by train, and then a steamer at Collingwood for what is known as the Forty Thousand Islands, where Mr. Jones had selected three islands that were best suited to his purpose. How we hunted duck and deer, and fished, talked bees and the great possibilities of mating queens to select drones; how we could make desirable crosses on other islands, it is not necessary to relate here; but suffice it to say we never met a more whole-souled and genial host or a more enthusiastic bee-keeper in all the 25 years that we have been at the editorial helm of this journal. The reader, if interested, will find a full account of this in GLEANINGS for 1884, pages 620 and 696.

Mr. Jones was one of the most genial men we ever met. He liked a good joke, and knew how to perpetrate one on his friends. If space did not forbid we would tell how he got the laugh on T. G. Newman, then editor of the *American Bee Journal*, and A. I. Root; of how he got a "goak" on us. He was a leading spirit in the conventions of

his day, and always the center of a jolly group of kindred spirits between sessions. He was at one time the leading manufacturer of bee-supplies in Canada. He founded the *Canadian Bee Journal* over 25 years ago; and all through Canada we can find to-day the impress of this most remarkable man.

During his later years, pressure of other business seems to have absorbed his attention until he dropped out of bee-keeping altogether. He was a man of large ideas and large affairs; always generous with his money and time, he did much to advance apiculture in the early days, especially in Canada.

We notice that his town paper, the *Beeton World*, credits Mr. Jones with the introduction of Italian bees into this country. This is a mistake. While he did introduce Eastern races of bees, and Carniolans, as already explained, the Italians were introduced by Richard Colvin, away back in the early '60's, many years before Mr. Jones went to the Orient.

We can not close this sketch without making an extract from the *Beeton World*, the paper founded by Mr. Jones, and published in his own home town. He was a prophet in his own home town. Read what his own townspeople think of him:

Although it was known he was very ill, the news of the death of Mr. D. A. Jones on Sunday morning came as a shock to all. He had always been an active and energetic man, both mentally and physically, but for some months was troubled with a weakness of the heart, and the immediate cause of his death was angina pectoris.

During his early residence here he bought a tract of land which now comprises part of Beeton. This land was surveyed into plots, and he laid out the streets of the village and planted the beautiful shade trees which now adorn the streets and will stand as monuments to his energies for some time to come. His whole aim was given to the building up of the town. How much the community owes to him it is impossible to estimate. His many charitable acts and kindnesses will never be forgotten, but he is gone and another name is stricken from the ever-lessening roll of our old settlers. His very last act in life was to send a consignment of clothing contributed by himself and others to poor settlers in Parry Sound district, with whose conditions he was personally familiar.

In politics Mr. Jones was a strong Liberal, and on two or three occasions he conducted exploring parties in the north country for the Government, penetrating the wilderness from the main line of the C. P. R. near Sudbury, and on one trip going through Hudson's Bay as far north as Baffin's Bay.

He had been a life-long Presbyterian, and contributed largely toward the erection of the Presbyterian church here. When the contents of the will are made known it is expected that all religious denominations and the citizens generally will be benefited by a provision made for the erection of a mausoleum in the cemetery.

He had been postmaster here almost continuously since his arrival in town, 46 years ago.

That "last act," as given in the foregoing extract, of sending clothing to the poor settlers in Parry Sound, is only an outcropping of that irrepressible, generous, kindly spirit, the love of his fellow-men, that pervaded his whole life. He was indeed a truly great man and a Christian brother.

Four ministers of the gospel conducted his funeral—another estimate of the high esteem in which he was held by the Christian ministry.



## THE NECESSITY OF HAVING COMBS WIRED IN HIVES THAT MUST BE SHIPPED.

BY J. L. BYER.

While the present time of the year may be an unseasonable period to discuss the merits of wiring brood-frames, I have been moved to say a few words on the subject by reason of my having recently happened to read in one of the earlier editions of the A B C of Bee Culture what friend Doolittle has to say on the subject—his remarks in the case referred to being on the advisability of having all frames wired on which bees are to be shipped on.

The publishers of the A B C of Bee Culture, page 231, 1903 edition, very strongly advise the wiring of all frames; if it is contemplated to ship bees it is almost "absolutely necessary," they say. Mr. Doolittle, in his comments, says, page 398, same edition, "I have shipped many colonies of bees during the past five years; and although none of the combs have been wired, I have yet to hear of the first injured comb. As my combs are deeper than those in the L. frames they would be more likely to be damaged than would those in the L. frames." It would be interesting to learn whether, after the lapse of another seven years, Mr. Doolittle is still of the same opinion.

I am led to inquire on this point on account of a very forcible illustration we had last season as to the advisability—nay, shall I rather say the *necessity* of wiring frames, if it is intended to have bees shipped on the combs that will be built in them. About the middle of last August fifty two-frame nuclei were ordered by myself and a friend living a short distance from me. They were sent by express, and arrived at my station on the 24th and 25th of August, if I have the dates correct. They were shipped in two lots, and each lot was in the customs at Toronto, about 24 hours awaiting customs clearance.

When they arrived, the first lot seemed in first-class shape in so far as outward appearance was concerned; but when we came to transfer them we found about ten per cent of the ends of the top-bars of the frames had been split off, showing that they must have received very rough handling while in transit. A number of the combs showed by the looks that, if they had not been wired, there would certainly have been breakdowns, and quite likely some of the nuclei would have been ruined.

When the second consignment arrived, things were in much the same condition as with the first lot, only a *little bit worse*. The nuclei had been shipped in pairs—i. e., two were clamped together, as in that condition they made a parcel that would more easily stand, and one that would not be so apt to upset as though each one were separate. Now, these bees had been put up in splendid condition, and the pairs of light shipping-cases were clamped together with cleats that were fastened to the cases with screw

nails. Yet for all these precautions, one of the clamps had been broken apart, and I suspect at least one of the nuclei had come part of the way lying on the side instead of standing upright. Indeed, when we came to examine this particular nucleus I came to the conclusion that the express-handlers must have been using it as a *football*, as the two combs were broken loose from the frames completely, with the exception that the horizontal wires held intact at the ends and held the combs like suspended boards in the frames. When the condition of things was noted, I was surprised that the combs had not gone "kersmash," as the weather at the time was quite warm, and the nucleus was a very strong one. Examination showed that, in addition to the horizontal wiring, these frames happily had had wires pressed in the foundation vertically as well, in the same manner as Dr. Miller uses the splints. Quite likely if the wires that were in the foundation vertically had been passed up through the top-bars the combs would never have broken loose at all. On this point we can not be sure as to just what would have been the result, as possibly the top-bars might have broken down when the tremendous jolt took place. Any way, it was quite clear to me that, without wiring of any kind, the nucleus would have been a total loss, and, as already intimated, we have reason to believe that others in the shipment would have suffered as well.

As it was, the suspended combs had pressed together somewhat and killed a number of bees, but by good fortune the queen had escaped, and we were able to fix them up all right. It may be argued that this shipment received unusually rough handling; and while we will all agree on this point, experience has taught us that, when sending *any* thing by express, it is wise to prepare for this kind of treatment. It does seem a pity, though, in view of the exorbitant rates, that such treatment should be accorded such a perishable article as live bees; and when the damaged shipment arrived, I remarked to the local agent, who is a good friend of the writer, that, in view of the desperate treatment the bees had received, I would gladly have sacrificed the damaged nucleus if some good luck would have released the bees in the car of the offending handler.

### MOVING AN APIARY ON HAND SLEDS.

This fall we had occasion to move one yard of some 80 colonies about 100 yards from their old location. While at the Ontario convention, advice was asked as to when and how best to move them, and said advice ranged all the way from taking them any old way to the most careful method of carrying them all by hand. The last advice was given by friend McEvoy, and, although I did not say so at the time, I came home intending to follow his plan. But when we tried that method it proved to be too hard work, for, be it understood, the bees were all packed in their winter cases and would weigh from 120 to 150 pounds

each. While we were debating the matter a light snowfall came, and my brother suggested trying hand sleighs for the work. Two of these handy implements were brought into use, and my brother and I moved the whole apiary in one day, besides arranging hives, stands, etc., as we went along. By this method we were able to take two at a time (one on each sleigh), and the work was done so quietly that the bees hardly knew they were being moved. A few colonies were a bit uneasy, but at first signs of a bee at the entrance a handful of snow thrown in stopped all trouble.

The plan of moving them was much better than getting a large sleigh, as in that case it would have been necessary to close the entrances—a lot of work.

While many have reported moving bees in the fall and winter with no bad results, even if the bees were badly shaken up in the operation, yet we confess to a feeling that it at least does them no *good*, and personally I like to see them left as quiet as possible during the cold weather. If the present cold weather continues all winter, and the bees have no chance of a cleansing flight, *this* fall, at least, I believe bees will be all the better if they have not been disturbed by moving. Just here I might remark that in our section of country the bees had no flight after the last of October to amount to any thing; and from Nov. 23 to this date, Dec. 16, the weather has been *very* cold continually—in fact, a record-breaker for so early in the season.

Mt. Joy, Ont., Can.

### LEGISLATION IN NEW ZEALAND PROHIBITS BOX HIVES.

BY ISAAC HOPKINS.

Dr. C. C. Miller, p. 646, Oct. 15, 1910, calls my attention to your Colorado foul-brood law, and by so doing implies that I made a mistake in saying that *all* your acts have the cardinal weakness of allowing the box hives to exist. I am fully aware that in Sec. 6 of the Colorado Act it says: "The inspector shall have full power, in his discretion, to order any owner or possessor of bees dwelling in box hives in apiaries where the disease exists (being mere boxes without frames) to transfer such bees to movable-frame hives within a specified time," etc.; but this provision does not get rid of box hives in their entirety; and, although it gives the inspector power to order the transfer of bees to frame hives, it is only "in apiaries where the disease exists" that he has that power. Following on this, after carrying out the inspector's instructions, there is nothing in the act to prevent the bee-keeper from using box hives again the next day for additional bees, so that it is possible, and apparently legal, to have a mixed apiary of box hives and frame hives—a kind of piebald arrangement. You will need something more direct than this to get rid of the careless and dangerous bee-keepers.

The editor's footnote to Dr. Miller's Straw turns on the custom of bee-keeping in England. I didn't write from England, neither did I mention a word about it or English bee-keeping. I wrote from New Zealand, and compared our foul-brood act with yours. I certainly have no reason to be dissatisfied with your Ohio act if you are not; but it would not suit New Zealand bee-keepers. If, as you say, "it is up to the bee-keeper himself to transfer immovable combs," etc., there should be no need for even Sec. 6 in the Colorado act.

Auckland, N. Z., Dec. 3.

### BEE TERRITORY IN IDAHO OVERSTOCKED.

Report of Annual Meeting.

BY R. D. BRADSHAW.

The Eastern Oregon and Idaho Bee-keepers' Association held its annual meeting Jan. 14 at Caldwell, Idaho. Owing to the phenomenal growth of the industry in this section there was a large attendance. Bee-keepers representing 10,000 colonies were present.

The principal topics taken up were the marketing of the crop, and overstocking. Regarding the latter it seemed to be the unanimous opinion that, in the limited territory now under water and cultivation in this section, it is being greatly overstocked. In one district near Parma, about three miles east, there are 1700 colonies working on the same ground. Mr. Powers, of Parma, one of our well-known and prominent members, who has 300 stands in this district, stated that, as the numbers of bees in this vicinity have increased, he has noticed his crops have materially decreased.

To be sure, there are several government irrigation projects that are being opened up; but as yet the acreage of alfalfa is small. Thousands of acres are being set directly to fruit alone, this being more profitable. The market for alfalfa depends almost wholly on the range stock for an outlet. As the range is depleted, the larger tracts of alfalfa will be replaced by other crops. All these facts tend to lessen the honey-flora.

A committee of the largest producers will wait upon our legislators in a very few days to demand an appropriation to combat foul brood; also to have our foul-brood law now in force to read, "All bees shipped in from other States to be inspected for disease before crossing the State line."

Payette, Ida., Jan. 15.

### MOVING SHORT DISTANCES.

Entirely Feasible any Month in the Year.

BY CLINT F. PULSIFER.

The moving of bees a *short* distance has come to be quite an interesting question to some of us; and as the experience of others



was worth something to me, perhaps my testimony may not be out of place.

I had carefully read Carey W. Reese's plan in the January 15th issue for 1909, also Mr. O. B. Metcalfe's, April 15, 1909, but not until the appearance of the article by the editor in the October 15th issue did I find the simple method that, as I thought, seemed to fit my case and requirements. Of course, we all recognize that there is no difficulty in it, in a cold climate where bees are confined for weeks or months at a time without a flight, and most of us have had experience along that line "back in old Michigan" or some other place. But here where bees fly practically every day in the year it is quite different.

Having occasion to move 40 colonies a distance of about 25 rods, and not wanting to take a chance in waiting for a cold spell of weather, which here might never come during the winter, I followed the suggestions of our editor. I closed the entrances early in the morning before the bees were flying; placed the hives in the spring wagon, and took them to the new stands. This was done before 4 P.M., and at about that hour (which was about one hour before sunset) we began *drumming* them, and smoking them alternately for nearly half an hour, then we removed the entrance-closers as speedily as possible and gave the bees a few moments' flight before dark.

The following day I made it my business to visit the old stands several times and see if it was necessary to place hives there for the returning bees to save the loss, but it was all quite unnecessary, for I think I could have carried them all in a Benton cage; and I have reason to believe that the few that were remaining had slept out of doors the night before they were moved.

Tempe, Arizona.

#### EMPTY CELLS OR SOLID COMBS OF STORES FOR THE WINTER CLUSTER.

The Problem Modified by Outdoor or Indoor  
Wintering.

BY DR. C. C. MILLER.

Before any blood is spilt I'd like to see if Messrs. Byer and Root can not be induced to come to some kind of understanding as to having bees winter on solid combs of honey. I suspect there is really little difference as to the actual belief of the two men. If the matter were put before him in the right way, I think Mr. Byer would be willing to say, "The bees must have some room for clustering that is not divided up by solid slabs of honey," and I think Editor Root might make the concession, "It is altogether possible for a colony to winter well on combs filled full from top to bottom-bar."

When bees seal over the honey in two contiguous combs they generally leave a space of about  $\frac{1}{4}$  inch between the two opposing sealed surfaces. Now, Bro. Byer,

suppose we have a set of combs sealed from top to bottom, with bees on them, and that the bees can go nowhere except between these solid slabs of honey. We should have the bees divided up into layers  $\frac{1}{4}$  inch thick, with a thickness of  $1\frac{1}{2}$  inches of solid honey between each two layers. You don't believe they would make a howling success of wintering in that way, do you? There would have to be a chance somewhere for enough bees to get together so that there would be more than a  $\frac{1}{4}$ -inch layer of them. I think you would agree to that.

Suppose, on the other hand, Bro. Root, that we have a winter nest arranged just to your liking, with empty cells in the lower part of the central combs in a somewhat globular shape. Outside that space the combs are solid with honey. Now I suppose it would be just as well, possibly a trifle better, if those empty cells were gone entirely, leaving nothing at all inside the cluster of bees. Parts of bottom-bars and empty combs inside a cluster can hardly be of any benefit. If we count, then, that there is nothing inside the cluster, then we have the bees practically on solid combs, don't we?

In what shape is it best to have that cluster of bees? Undoubtedly the sphere. Your two-fist arrangement, Bro. Root, is the ideal, just as the sphere is the ideal form for a hive. The nearer a hive comes to the spherical form, the better for the bees. But they will get along very well with a hive in the form of a cube, with a hive that is tall, that is shallow—in fact, in about any shape. So the winter cluster may be in almost any shape. In the case of your solidly filled combs, Bro. Byer, it will be semi-globular, under the bottom-bars, if there is space enough for that, flattened more and more as the space is smaller. With a two-inch space between bottom-bars and bottom-board I feel confident there wouldn't be the slightest trouble. An inch space might answer nearly as well, and how much less I don't know. But if combs were filled solid clear down to the bottom-bars, with only  $\frac{1}{4}$  inch between bottom-bars and bottom-board, I should expect the bees to succumb to a long-continued freeze.

But in actual practice, suppose we do have combs solid with honey to the bottom-bars, how long do they continue so? Mind you, we don't put solid combs in the hive in December. We're hardly talking about later than September—at least that's the McEvoy plan. Well, in some way the bees have got hold of Bro. Root's idea that they must have a two-fist space emptied out, and they begin at once to empty the cells inside of that space, and by the time the weather is very cold Bro. Byer's solid-comb bees will have things arranged to the satisfaction of Bro. Root.

I suspect, however, that, if we have solid combs, it may make some difference how much space is under the bottom-bars. It is just possible that Mr. Beuhre, p. 67, had a very small space between bottom-bars and

bottom-board, and that accounts for his unfavorable experience.

We are so used to thinking of the winter cluster being on empty combs that some will object to my idea that it is practically the same as on full combs. Bees, they think, must have empty combs inside the cluster. Well, let me say that many of my bees, when left to their own choice, prefer to have at least part of their cluster with absolutely nothing inside. In other words, the cluster hangs down below the bottom-bars. Some of the clusters touch the bottom-board two inches below the bottom-bars.

I've just been down cellar this 3d of February at 6 A.M. Outside the thermometer says 27 degrees; in the cellar, 50. In the 59 colonies that are in the upper two rows, I counted 48 clusters that were down below the bottom-bars. Some clusters were small, some large. In the other 11 cases some showed a few bees between the bottom-bars, and in some I could see no bees. In some colonies the cluster was at one side; in others, in the center. Some clusters were near the front; some nearer the back. In at least one case the cluster was clear to the outer surface of the front, closing the entire entrance. I don't suppose the cluster reached back further than the center.

The point I am making in this is that bees do not object to clustering on nothing. Perhaps I ought to add that no feeding was done last fall.

Bro. Root says bees undisturbed make an empty space, and "we ought not to go contrary to nature." That's right. But Bro. Byer may reply that bees will, if they get the chance, fill clear down to the bottom-bars, and "we ought not to go contrary to nature." (I've had bees without any feeding fill combs so full that no two-fist space was left.)

My bees plainly work toward the Root idea, and at the same time—perhaps I ought rather to say prior to that time—they have such a strong liking for the Byer plan that they fill honey clear down to the bottom-bar *if they can get it*. And I like both plans.

Marengo, Ill.

[Referring to your first paragraph, where you say that you believe there is but little difference in actual belief between Mr. Byer and myself, you will see, if you turn to our footnote in reply to Mr. Byer, that we gave utterance to the same thought. That is to say, we agree with Mr. Byer *if* he means having combs solid with stores in September for outdoor wintering. By December the bees will make in those combs just such a winter nest as we hold that they need. Taking this view of it, our beliefs and practices are almost identically the same. We do not think Mr. Byer himself would insist on giving a colony nothing but combs with solid capped stores in the middle of December.

In all this discussion one must not lose sight of the question whether bees are win-

tered *indoors* or *outdoors*. In a good cellar it is not so important how the stores in the brood-nest are disposed in the combs, providing there are enough for the needs of the colony. Nearly all normal *indoor*-wintered colonies will cluster in the space between the bottom board and the bottom of the combs. Such colonies do not need a winter nest like the bees outdoors.

In reading through your article it appears to us that you have in your mind's eye the bees in your cellar. You have never practiced outdoor wintering to any extent, and therefore it would be natural for you to think of the condition of a colony in a winter repository; for you say, "Let me say that many of my bees, when left to their own choice, prefer to have at least part of their cluster with absolutely nothing inside. In other words, the cluster hangs down below the bottom-bars. Some of the clusters touch the bottom-board two inches below the bottom-bars."

All through this discussion we tried to make it clear\* that the question of winter nests had to do primarily with bees wintered *outdoors*. True it is that the inside colonies may have a nest; but whether they do or not, the success of indoor wintering does not depend on that winter nest unless the cellar is very cold much of the time. It is only when the bees are wintered *outdoors* that the question assumes importance. You, Doctor, find your indoor clusters just where we find ours; but unless we draw a clear distinction between *outdoor* and *indoor* wintering we shall get mixed up in our discussions. Again, we should bear in mind that if outdoor bees have solid combs *early* in the fall they will probably have winter nests by the time actual cold weather sets in if they are not disturbed.

## NECTARLESS FLOWERS.

BY JOHN H. LOVELL.

In a recent number a correspondent writes: "There has been some discussion of late as to whether bees get any honey from roses. I believe I have seen them at work very freely on wild or single roses, and I see no good reason why roses should not yield honey, as they belong to the same family as the apple, pear, plum, cherry, raspberry, etc. If one species of a given family of plants yields honey we may expect they will all do so."

It is a rule recognized by all students of flowers that it is never safe, from an examination of one species of flower, to draw conclusions as to another species, even when they belong to the same genus, much less when they belong to different genera or families. Each flower must be studied independently. It might seem probable, indeed, that, if one species of a family secreted nectar, all the others would do so; but

\*See GLEANINGS, page 688, Nov. 15, page 724, Dec. 1, 1909, and page 21, Jan. 1, 1911.



such is not the fact. In the buttercup family (*Ranunculaceae*) the buttercups, columbines, larkspurs, etc., all secrete nectar, but the anemones do not. In the large family of figworts (*Scrophulariaceae*) most of the species secrete nectar, but the mulleins do not. In the honeysuckle family (*Caprifoliaceae*), the viburnums and honeysuckles secrete nectar, but the elders (*Sambucus*) do not. Many orchids secrete nectar, others do not. In the St. Johns-wort family (*Hypericaceae*) the marsh St. Johns-wort secretes nectar, but the St. Johns-wort (*Hypericum*) does not. In the night-shade family (*Solanaceae*) the night-shade is a pollen flower, but the ground-cherry contains nectar. Other instances might easily be given. Incidentally it may be remarked that flowers do not secrete honey—they secrete nectar.

Your correspondent says that he *believes* he has seen bees at work on wild roses. If he has observed our wild roses carefully I do not doubt that he has seen (as I have) hundreds of bees at work on their blossoms, but they are not collecting nectar. The use of the word "believes" shows that his observation is merely an impression. In the case of the rose the only way to tell whether it contains nectar or not is to examine the various organs under the compound microscope. He does not say that the bees were honey-bees, but the impression is that they were. They probably were not, but large bees belonging to the genus *Andrena* (*A. carlini* or *A. vicina*), or some other wild bee which might easily be mistaken for honey-bees, especially at a casual glance.

A man in this vicinity who was a bee-keeper for many years, and whose father before him kept bees, asked me this spring to look at his plum-trees. He told me that they were loaded with blossoms, and visited by great numbers of honey-bees. They were, indeed, a beautiful sight, each tree forming a huge bouquet of white flowers. There were hundreds of bees flying about among them, which were pointed out as honey-bees. A brief inspection was sufficient to show me that they were chiefly a species of *Andrena*. As a matter of fact, I did not see a single honey-bee.

Another amusing illustration of how easily other insects may be mistaken for honey-bees occurred a few days ago. A prominent official of this town told me how his wife had called his attention to the presence of many bees on the windows of a shed chamber. He related how he had covered his head with netting, put on an overcoat and mittens, and finally drove them out.

"Now," he inquired, "how did they get there?"

"They were not bees at all," I replied, "but flies. If you will examine them closely you will find that they have only one pair of wings."

Naturally he was somewhat astonished at this statement; but some days later he brought me two of the insects in a bottle. They proved to be, as I had expected, syr-

phid flies, which are often found on flowers, and are called *Eristalis tenax*. The larva lives in wet places, and has a tail like a rat, though much smaller, through which it breathes by extending it upward to the surface of the water. It is never found without exciting curiosity.

Perhaps another example may be of interest. One autumn day a boy told me that the side of his father's house had been covered a few days before with my bees. I had noticed, however, on the afternoon mentioned, thousands of male and female ants on the wing, and it was the females of these ants which he had mistaken for bees.

There are thousands of flowers which do not produce nectar, being chiefly pollinated by the wind, as the grasses, sedges, alders, elms, beeches, birches, and hickories. They are often visited by insects for pollen, and I have seen the honey-bee busily at work on the alders in early spring, and on the spindles of the Indian corn later in the season. The cone-trees, as the pines, produce such immense quantities of pollen that, when it is carried upward by a breeze, it is sometimes mistaken for smoke. The so-called "sulphur showers" are due to the falling of millions of pollen grains which have been carried up in the air from cone-trees by the wind.

Waldoboro, Me.

## LARGE VS. SMALL HIVES.

The Eight-frame Hive all Right in its Place.

BY HARRY LATHROP.

I was very glad to see Mr. Aiken's article, page 730, Nov. 15, 1910, in which he stands up for the merits of the eight-frame hive. I have always used and preferred the eight-frame L. hive as he suggests, giving the queen two sets of combs when deemed advisable.

Last July I paid a visit to the apiary of Miss Candler, at Cassville, Wis. While there I received what might be termed a jar to my complacency regarding the use of small hives. Miss Candler was conducting me through her well-appointed home apiary. The season with her was not considered a good one; still, there was considerable honey in the yard, especially on hives that had been supplied with extracting-combs. I was shown a sixteen-frame L. hive having a set of store combs above, or 32 in all. The upper set was plugged with honey, and I said to Miss Candler, "There is 80 lbs. of honey on that hive, and you have lost perhaps 25 lbs. by not having given more room when needed."

To this she assented. I said that I just wished I had a lot of hives like that one with 80 lbs. of nice honey. Visions of what might be done flashed before my eyes; but then, at second thought, it occurred to me that I had at home in my yard quite a number of eight-framers that, tiered up, had already produced as much as 80 lbs. each;

and in making comparison with such hives would I not be entitled to put two of my eight-frame hives against one sixteen-frame? Of course, I would; and when it comes to that, I can take two eight-frame hives with a good queen in each, and discount any one of Mr. Holtermann's large hives. If I see fit to manipulate smaller hives for convenience' sake, why am I not to be rated according to the number of combs used, and not by the number of hives?

I believe there are many localities where the eight-frame L. hive is just about right, and it is hardly fair to upset the plans of beginners and cause them to begin expensive changes without having them understand that there are as many arguments in favor of as against the small hive as used by the experienced honey-producer. I would not say a word against the growing popularity of the ten-frame hive. I use some of them right along, and would have worked into them long ago, only that I could not see any advantage in doing so. But if I had a chance to start an apiary with all ten-frame L. hives I would not hesitate a moment, for I believe they are as good as but no better than the eight-frame when properly handled.

In speaking of her sixteen-frame hive, Miss Candler said it never swarmed. This non-swarmling feature would be an advantage, of course, if it could be said that the eight-frame hives were never non-swarmlers, but that would not be true; for if tiered up they also may be non-swarmling.

The sixteen-frame hive would be too heavy for cellar wintering where one man does the work. With such hives, outdoor wintering would have to be followed, but that introduces another topic upon which I will not enter at this time.

Bridgeport, Wis., Dec. 6.

### ITALIANS OR BLACKS.

The Italians Breed up Too Early, and then Swarm Instead of Working.

BY W. C. MOLLETT.

Noticing what Mr. T. B. Mowry, of Connecticut, has to say, p. 701, Nov. 1, 1910, as to the relative value of blacks and Italians in his locality, I have about come to the same conclusion. It would seem that the difference as to the amount and kind of honey-producing plants in a given location has very much to do with the question as to which race is superior. This locality is somewhat similar to that described by Mr. Mowry—that is, it is covered with timber to a considerable extent, mostly oak and beech, and has very few good honey-producing flowers since the basswood and whitewood have been mostly cut away. The past season here was a very poor one, the bees being upon the point of starvation in the first part of June—something never before known; but we had a remarkable

honey-flow in 1909, my colonies that year giving an average of 90 lbs. surplus. I have been trying Italians for the past four seasons, and am firmly of the opinion that they are inferior to the blacks in this locality. Of course, in a section where there is plenty of white and sweet clover the Italians may be much ahead of the blacks as honey-gatherers.

The chief objection I have to the Italians is their prolificness, although this may seem rather paradoxical to most bee-keepers. They will begin rearing brood here in February, and by the first of May the hives will be crowded with bees at a time when there is no nectar to gather, and, as a result, I am usually compelled to feed more or less or lose the bees. No matter if the hive contains 50 lbs. of honey in the fall, they will use it all in brood-rearing before the first of June; then if the weather is not favorable they may be at the point of starving.

If the weather is very favorable the Italians will also often swarm by the first of May—a time when there is little honey to gather, and then the swarm must be fed until the honey-flow comes, usually about the middle of June. The swarm will also usually swarm again during the honey-flow, which will cause the extra labor at a time when we would rather they would be gathering honey. The Italians seem to have a perfect mania for swarming here, which, to a considerable extent, impairs their usefulness as honey-gatherers.

The blacks, as a rule, do not commence brood-rearing until March, and then they do not raise as many young bees as the Italians; and, as a result, they are not likely to use up their honey so soon, and so are not as liable to be in danger of starving. The past season, when I was compelled to feed all of my Italians, the bees belonging to one of my neighbors lived through without any feeding—they being of the common black variety.

By the time the honey-flow comes, the blacks are usually strong enough in bees to gather considerable honey when the weather is favorable, and they are not nearly as liable to upset all of our plans by swarming.

One season the blacks gave a fair amount of surplus when I got nothing from the Italians but increase, which I did not want. I am aware of the fact that this locality is a very unfavorable one for bees, on account of too much rainfall and scarcity of honey-producing plants, and that bee-keeping does not pay here, even with the best management; but on account of fertilizing the fruit-bloom I will continue to keep a few colonies.

Stonecoal, W. Va., Dec. 2.

### Honey Not Broken in Double-tier Shipping-cases.

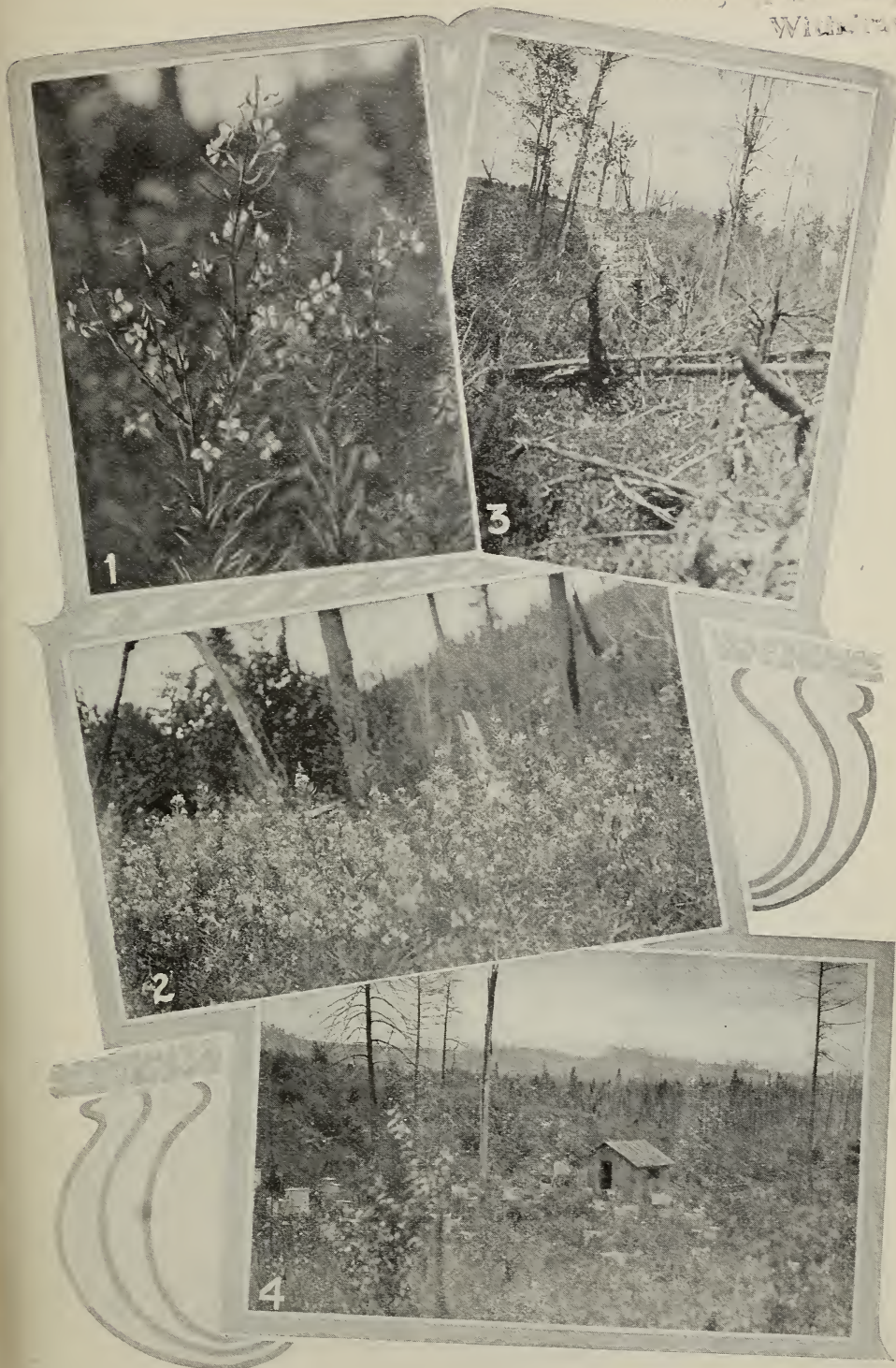
I have been shipping a good deal of comb honey for the last three years. I use the double-tier shipping-case with corrugated paper between the tiers and at the bottom of the case. I have never heard of one section being broken, and I have shipped over two lines of railroad, and hauled over four tons each year on a wagon twenty miles.

Stanfield, Ore.

T. J. BARRINGER.



WILLOW-HERB



THE WILLOW-HERB OF NORTHERN MICHIGAN.



## THE WILLOW-HERB AND RASPBERRY OF NORTHERN MICHIGAN.

On Account of the Leaf-mold being Burned by the Great Fire of 1908, the Raspberry Locations are Not what they Used to Be.

BY E. D. TOWNSEND.

Willow-herb (*Epilobium angustifolium*) is often called by the first half of its scientific name, "Epilobium." It is also known as hawk-bill, on account of the hooked-down shape of the buds at the extreme top of the stalk, while still another name is pine pink, for it is of a reddish-pink color, and sometimes grows on pine cuttings mixed with hard wood. It is a fireweed, and usually produces honey for three seasons after a forest fire, and then it is crowded out by other foliage, and not heard from again until after another fire, which is likely to follow in two or three years more, when the fire-burned timber has fallen down, thus providing material for subsequent conflagrations.

Willow-herb is at its best the second season following the first fire after the timber has been removed by the lumbermen. Each subsequent fire burns off more of the leaf-mold, and leaves less nourishment that could produce growth, and, consequently, willow-herb disappears almost entirely after a few fires, or, at any rate, so little of it is left that, from a honey-producer's standpoint, nothing remains. The plant branches out like buckwheat, and it is nothing rare to see single stools with a dozen great thrifty shoots making a plant three feet in diameter. These are the ones that produce "showers" of honey; but little may be ex-

pected from the plant when not in this thrifty condition.

The name "willow-herb" is derived from the shape of the leaves, which are almost identical with those of the willow, which furnishes the bees so much pollen and honey during the spring months. The blossoms are reddish pink in color, and very attractive, and, when once seen, will always be remembered. In Fig. 1 an enlarged view of the blossoms is shown. Notice that, on the extreme top of the upper view, there are four or five buds not yet in bloom, while further down there are some in full bloom, and, still further down, the seed-buds.

Figs. 2 and 3 are characteristic scenes of the home of the willow-herb. In the latter view some of the fire-killed timber has already fallen down, furnishing material for another fire.

Fig. 4 is our Springbrook yard in Charlevoix Co., of which I shall have more to say at a later time.

Growing side by side with the willow-herb is the famous wild red raspberry of Northern Michigan. While Figs. 1 and 2 show willow-herb, most of the undergrowth in Figs. 3 and 4 is the wild red raspberry, this plant being to the bee-keepers of Northern Michigan what clover is to those in the southern part of the State—the main source of surplus honey. The occasional years when willow-herb or basswood yields honey in sufficient quantities for commercial purposes are so limited that bee-keeping would be unprofitable without the raspberry.

When we first moved our bees to the raspberry district, the bee-keepers there told us that it was customary for forest fires to burn during the month of April, and that, later,

the foliage would become so dense as to shade the ground to such an extent that the undergrowth would be too damp for forest fires that year. These fires burn only the dry leaves and limbs, and leave the ground in an ideal condition for raspberry and willow-herb. Of course, forest fires are especially necessary for willow-herb growth, as this plant is a species of fireweed.

During the summer and

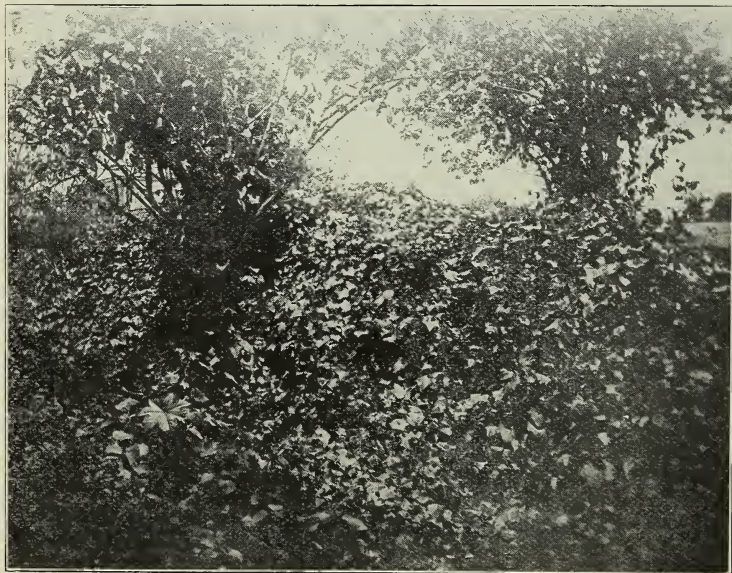


FIG. 4.—CHAYOTILLO VINE COVERING OLD WALL NEAR CITY OF MEXICO.



fall of 1908 the "fire rules" were suspended, for the burning kept on during the period of full leaf. This season of 1908 proved one of the driest in years, and the larger portion of the timber belt of Northern Michigan burned over. At this period the ground was so very dry that the turf or leaf-mold burned off entirely in many places, leaving only the naked sand to produce the after-crop of willow-herb and raspberry. Those familiar with this section of the country will readily understand that the subsequent growth was thereby spindling, and the plants far apart—nothing like the thrifty growth of other times. On this account many think that the raspberry of Northern Michigan will never be what it was before this fire, basing their arguments on the fact that many spots, where there were dense growths of the berries, are now, since the fire, only piles of ashes. Another drawback in this locality is that late frosts have cut the surplus crop of raspberry honey in two, both seasons, since we have had the bees in that location.

To sum up the situation, I will say that, in my judgment, a bee-keeper fairly well located in a clover location had better stay where he is rather than move to the much-lauded raspberry region of Northern Michigan. I have moved two cars of bees to al-sike-clover locations, and placed only half the number of colonies in our raspberry apiaries that we had before the great fire of 1908. This will answer many inquiries that I have received about raspberry locations.

Remus, Mich.

## BEE-KEEPING IN THE HIGHLANDS OF MEXICO.

The Long-Idea Hive as Formerly Used by Carl Ludloff.

BY O. B. METCALFE.

*Continued from last issue, page 77.*

At the City of Mexico I met a modern bee-keeper by the name of Fred M. Allen. Mr. Allen keeps about 75 colonies in eight-frame standard American hives, and runs them for comb honey exclusively. He gets an average of one super around, which brings

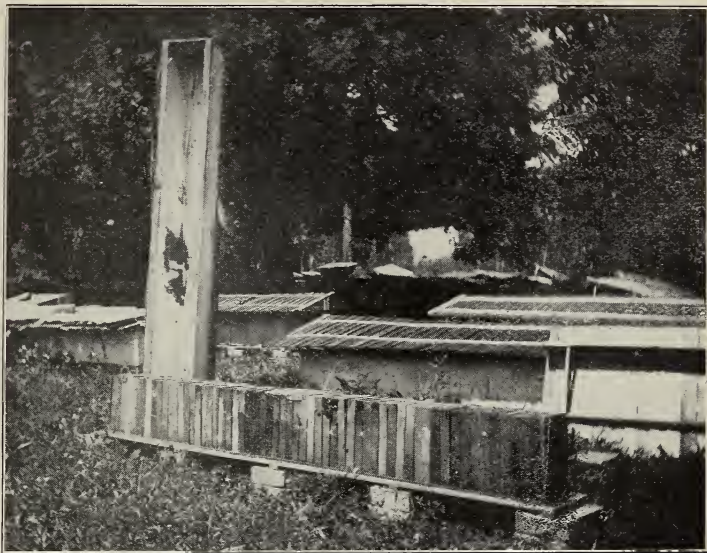


FIG. 5.—ONE OF CARL LUDLOFF'S SIMPLEX HIVES AS HE FIRST MADE THEM, NEAR THE CITY OF MEXICO.

him about 40 cts.\* per lb. His wax, of which he naturally has very little, being a comb-honey producer, brings him the customary price of \$1.00 per lb.

Mr. Allen does not seem very well pleased with the business, and talks as though he must give it up unless the perfected Ludloff hive, which he is just now trying, proves to be better suited to the climate. He complains of heavy loss and weakened colonies from spring dwindling, which, apparently, is a very natural thing in his locality, and I doubt very much that he will find any hive which will materially prevent it. It is caused by the fact that, all the year round, the weather is warm enough for the bees to fly, and there are enough flowers to coax them out, but not enough to enable them to gather much nectar, and at the same time the nights are too cold for much brood-raising. This means the wearing-out of the old bees with nothing to take their places.

Mr. A. says his only honey-flow is from the chayotillo vine, shown in Fig. 4. This begins to bloom about the last of August, and the bees make their one super of honey from it. They also swarm furiously when the flow first starts.

The plant chayotillo is a fine climbing vine which belongs to the cucumber family, and, like the cultivated cucumber, it requires abundance of moisture. I have tried to grow it here in New Mexico, but it seems to be too hot and dry for it. It did very well while the ground was kept wet and cool around it, but it had to be irrigated nearly every day. Such a climate as the City of Mexico has, where the rains are frequent—almost daily during the rainy season—just suits

\*About 20 cents American money.





Fig. 1.—Chas. Piercy, an electrician at the Naval Station, Mare Island, California, who finds time to keep up a little apiary in spite of the difficulties encountered.

it, and it thrives there in great profusion, covering bushes, fences, and old walls with a solid blanket of bright green. By August 20 it begins to bloom, and soon the whole vine is covered with a small white bloom. The bees make from it, while it lasts, a light amber honey of fine quality.

cern, and, no doubt, very warm; but as the walls both inside and out were nothing but cloth, the whole had to be covered with a shingle cover as shown in position on the unopened hives.

After some five or six years of failure near the city, Ludloff & Co. moved their bees

It was here near the City of Mexico that Mr. Carl Ludloff made his first attempt at extensive bee-keeping in the republic. He is now located at Irapuato, and in a later article I will have more to say about him and his "Simplex hive." Mr. Ludloff might be called the pioneer of intense bee-keeping on the highlands of Mexico. His experiments at Mexico City were a failure. He organized a stock company with a capital of twelve or thirteen thousand dollars, and put in a large apiary in the type of hive shown in Fig. 5. These hives were about nine feet long, and contained as many as sixty frames. It will be seen at a glance that the hive is very much on the order of the Huber hive, shown on pages 248 and 249 of A B C and X Y Z of Bee Culture. It seems to have been the idea of Mr. Ludloff that, the larger the colony got, the more frames he would give to it by simply shifting his division-boards, and that he would in this way do away with swarming entirely. No doubt this arrangement helped somewhat to keep down the swarming; but he still had swarms. The cover or case for the hives, which may be seen standing on its end in the picture, is a double-walled chaff-filled con-

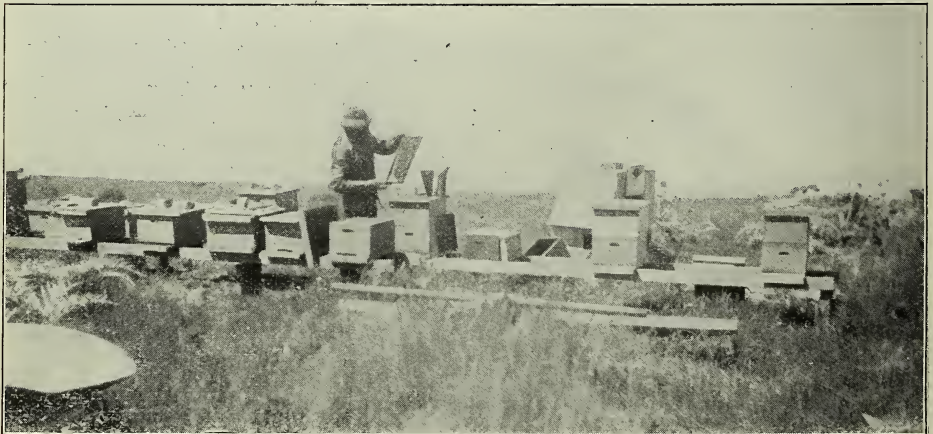


Fig. 2.—Chas. Piercy's Apiary, Mare Island, California.





Fig. 3.—Mr. Piercy's "armor" resists the onslaught of even very cross bees.

over the mountains to Cuerna Vaca. The idea at that time was to build up colonies over there at just the right time, and to ship them over into the great valley at the city for the chayotillo flow—a venture which also proved to be impractical, and the company fell through. This apiary is still at Cuerna Vaca, and will be mentioned more at length in my next article.

Mesilla Park, New Mexico.

### BEE-KEEPING ON AN ISLAND NAVAL STATION.

BY W. A. PRYAL.

At Mare Island, about a mile from South Vallejo, Solano Co., is located the Government Naval Station. An electrician at the navy yard, Mr. Chas. Piercy, has always been interested in bees, and about four years ago he began the nucleus of his present apiary by securing a miserable poor colony over in Vallejo. I believe it soon died. His next prize came in the way of a swarm that flew across the channel from Vallejo and took up quarters in one of the naval buildings. From this capture the apiary grew until, at the time of my visit, last April, there were fourteen colonies. He finds ready sale for all his honey among the families of Island Station. It is well that he does, for I believe it is a hard matter to get any thing off the island without unraveling a lot of red tape.

Mr. Piercy is quite a mechanical genius. Having access to the mechanical shops of the Station he has built a gasoline-engine which he uses for power, and he makes his own hives, including the Hoffman frames. He also has a giant bee-smoker of his own construction, the metal parts of which are of galvanized sheet-iron, and, instead of using sheepskin for the bellows, he uses some

kind of colored canvas obtained from the naval stores. He had just finished a small reversible honey-extractor, the gearing of which was made from a machinist's breast-drill that had been condemned in one of the workshops. The reel was of the standard pattern obtained from some supply house.

The bees on the island are extremely cross, but our friend has an armor or protection of unusual form. This is shown in one of the engravings.

The best and most novel tool or implement house I ever saw

at a bee-yard was the one on this island, as shown in Fig. 3. It was a great safe-like box made water-tight, and provided with a hinged door. It had been discarded from some warship, and was lying on the dumps near by when it was appropriated for use in this apiary. This impels me to remark that the waste by the Naval Department is something terrific. To see what cost millions piled in the junk-heap is startling.

Mr. Piercy is raising the ground about the apiary by hauling on various kinds of rubbish so as to bring the surface above tide level. He considers a government naval station an undesirable place for bees, especially Mare Island, as he finds the forage scanty, and the wind and water bad factors to contend with. He hopes to retire some day to a ten-acre tract of land that he owns in the north, where he will be able to carry out more of his ideas of real living.

Oakland, Cal.

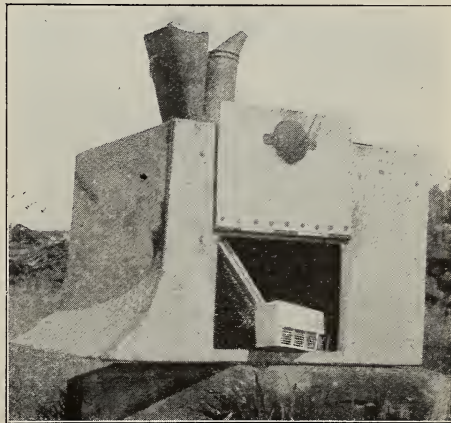


FIG. 4.—A tool-house made from an old safe-like box discarded at the Naval Station.



THE NARROW-LEAF COTTONWOOD OF COLORADO.  
This tree furnishes a large amount of propolis.

### THE NARROW-LEAF COTTONWOOD.

The Source of Most of the Propolis the Bees  
Gather in the West.

BY WESLEY FOSTER.

One of the first things an Easterner notices in coming west is the different tree flora. Instead of the oak, the ash, hard maple, basswood, hickory, etc., he sees the broad-leaf cottonwood, the narrow-leaf cottonwood, the willow, and the box elder along the watercourses of the plains, while in the mountains the aspen, spruce, and pine predominate. We who live in the valleys and on the plains are not blessed with woods such as are known to one living in the East, but none the less we love the sight of the trees along the stream-beds and irrigating-ditches. The changing colors of the narrow-leaf cottonwood are as beautiful as those of any tree I know of, and, though not so highly colored as the crimson blush of the oak, it is tenderer and more delicate in its shading. In fact, I think it is the most beautiful tree growing *naturally* along our streams. Its dull-gray lower trunk is slightly rough, but not as rough as the common cottonwood, and it grows smoother toward the top till a smooth silvery shade is reached half way between the silver-maple and the birch. The thin narrow leaves stand out against the sky as delicate as

lacework, and the tree has an air of wild natural refinement about it.

But, one can hardly find a bee-man who lives near where the narrow-leaf cottonwood thrives who does not regret the fact. The propolis is a bright reddish color, very sticky, and oozes out on the buds of this tree in such large bulbs that it is an easy matter for the bees to collect large quantities of it. The drawing shows the size of the bulbs of propolis, and I have seen a single bud that had propolis enough to make several good large bee-loads.

The photograph shows a lane with three narrow-leaf cottonwood-trees at its side, with their paint-brush-like tops flashing forth the light of the evening sun from the yellowing foliage. The leaves fall from the lower branches first, which causes the tops of these trees to take on the paint-brush appearance. The bees continue to gather the propolis, however, long after the leaves have fallen; for our long beautiful fall of bright warm days often lasts till nearly Christmas.

While we may regret the nuisance of the propolis we should not overlook the fact that this tree relieves the monotony that would make our farming sections of the plains well nigh unbearable. The narrow-leaf cottonwood lines our streams and ditches, and has often brought pleasure to those who watch the slow but steady advance of fall and winter by the changing colors and falling of the foliage.

Boulder, Col.



## EUROPEAN FOUL BROOD.

## Conditions in Which Bees are Immune or Susceptible.

BY F. B. CAVANAGH.

*Continued from last issue, page 79.*

The most important consideration in establishing either immunity or a cure is the Italian bee, although in my limited experience Cyprians, Carniolans, and Caucasians are all equally good resisters of the disease.

The leather-colored Italians are not so good as the three-banded yellow Italians; and with me, as a rule, the darker the *hybrid* the poorer the resistance. Time and again have I seen black or dark hybrid bees filthy with disease, while right beside them were hives of Italians showing scarcely a bad cell.

Young queens are also important in establishing immunity, as they keep the hive in a strong and vigorous condition; and for some reason their brood will hatch healthy, when that from a poor or black queen would

be diseased. Hence curing black bees of European foul brood is as futile as mending a worn-out automobile tire, and the case is quite as liable to break out again.

The time of the year and extent of the honey-flow are of great importance, and must have our utmost consideration when applying curative measures. In this locality the disease shows worst in May, the main breeding season in which bees are drawing heavily on their stores. At this, of all times, they are susceptible to the disease, and easily infected.

This is the time also when the "self-cured" colonies of the previous autumn will develop disease from the honey in the hives, if at all. Feeding in itself, at this period, will prevent much of the disease by supplying healthy food stores at a time when the colony is at the lowest ebb of vitality, and the time when the bees in the hive are mostly old, and, consequently, are poor comb-cleaners. If we bridge over this critical part of the season by feeding, these colonies a few weeks later will have established a condition of immunity when the honey-flow is on and the hive is full of young bees.

During this critical period is also the time to observe the superior condition of the Italian colonies whose young queens have supplied their hives with young bees by laying late in the previous autumn.

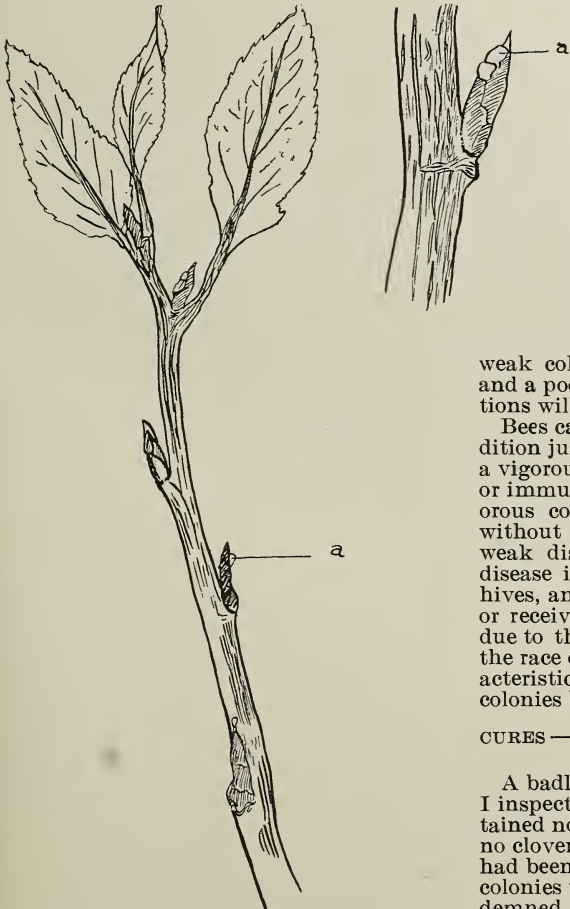
Summing up, the ideal conditions for immunity are: 1. Strong hives with young Italian bees and queens and a fair honey-flow, or feed given during the early breeding season.

2. Conditions for infection—weak colonies, poor queens, or black stock, and a poor honey-flow, any of which conditions will aggravate the trouble.

Bees can be kept in a strong resistant condition just as man's system can be kept in a vigorous condition, which will be resistant or immune to various diseases. That a vigorous colony may be fed infected honey without contracting the disease, while a weak discouraged colony will develop the disease if even in the vicinity of diseased hives, and probably without having robbed or received any infected honey, is plainly due to the "condition of the colony" and the race of bees. This condition was characteristic of my first experience—the weak colonies being attacked by far the worst.

## CURES—WHY THEY SUCCEED AND WHY THEY SOMETIMES FAIL.

A badly infected apiary of 25 hives which I inspected near Lowell two years ago contained nothing but black bees. There was no clover flow that year; and as the trouble had been there for some time previous, the colonies were so badly diseased that I condemned the entire lot. The McEvoy treatment was administered *simultaneously* to all colonies, each one being shaken twice with



COTTONWOOD BUDS, SHOWING BULBS OF PROPOLIS.

an interval of four days between. The hives were then disinfected, all honey boiled, and the combs rendered away from the bees. Although these colonies were blacks, rotten with disease, many of them weak, and provided with old queens, every colony was *permanently* cured as proven by inspection since that time, in spite of the fact that the work was done during a poor honey-flow.

During the same spring I moved fifty healthy colonies—the Berdine yard, in fact—within range of diseased bees which they robbed. Several of the colonies had been shaken, previous to development of any disease, to prevent swarming. When, a little later, the disease did appear, lo and behold! these shaken swarms were the worst infected of any in the yard. Wishing to make a clean sweep of the disease, I waited only until other colonies in the vicinity were treated, and then began on the McEvoy treatment; however, I didn't disinfect the hives, as I thought it unnecessary since the disease had been so recently contracted. And after curing hundreds of cases I still believe that the disinfecting would have had little effect in this case, for some of the colonies were shaken into new hives. In almost every case a return of the disease followed in a short time, leaving the shaken colony in worse condition than before, through depletion of the brood. My readers will now remember what I said awhile back about the bearing of the "condition of the honey-flow" and "resistant condition of the colony" as to immunity, etc. I want to impress the importance of this upon my readers, even if it is the last column of space I am ever permitted to use in GLEANINGS. For a surgeon to attempt an operation on a patient who has not vitality enough to withstand the shock would be considered folly; yet the idea of shaking bees under these conditions is just as unreasonable. Listen: The honey-flow was poor; the queens were, of course, poor, and the blackest bees in the worst diseased colonies. Had I requeened these weakened colonies at the time of shaking, I will wager that the result might have been entirely in my favor and in favor of the shaking method. Also had the honey-flow been good, which it was not, the results might have been better.

Well, it didn't take half an eye to see that I was making no headway by "shaking," so I began stacking the brood over other colonies, some of which were kept queenless. I also stacked some separately, leaving only one frame of bees to a body and no queen. As to cures, I had various results; but one fact stood out clearly; viz., the side of the apiary where the diseased brood was piled was getting the best of the bargain all the way through. In the fall flow the stacked colonies made a lot of honey while some on the shaken side of the yard had to be united to be put in shape for winter, and many of them had to be put on combs of healthy stores after brood-rearing had ceased, having failed to get rid of the disease.

The McEvoy treatment had been success-

ful with the black bees at Lowell because we had killed or "chased to the woods" every disease germ in the hives, combs, and honey. I am satisfied that, without disinfection of hives in this case, we should have had the disease back again in a short time. In the case of the Berdine apiary the disease was kept in the yard in those stacks, and I believe the germs were scattered through the air. My colonies treated *a la* McEvoy were in beautiful condition to be reinfected from this source; and right here is the weak point in the shaking treatment in large apiaries, viz., *it puts the colony in a weaker and more susceptible condition to contract the disease than it was at first.* My new swarms and the previously healthy shaken swarms were also in this susceptible condition as I have just related, the conditions differing only in that the treated colonies were the poorest to begin with in general vitality.

With the advent of the fall flow, most of the colonies cleaned up all traces of the disease, although the crayon-marks remained on each hive, showing their past condition and treatment. Now, had I succeeded in treating *all* infected colonies I might be telling bee-keepers to-day of the "cure" I had discovered; but, alas! for lack of help I failed to treat about fifty badly infected hives, expecting that they were requeened with the rest of the bees. The disease disappeared during the fall flow, and the inspection of the following May revealed that out of fifty hives not treated all were healthy excepting four, which showed the disease in very mild form. This yard had wintered perfectly, contained young Italian queens, and was left in the packing until settled warm weather. It also happened that a small bee-keeper located within about a mile of both this yard and the George yard had failed to clean up, and had a lot of robbing going on in some diseased hives. The strong immune bunch of fifty remained healthy, while in the George yard, which had wintered poorly, a dozen diseased colonies developed in the spring, and there were more throughout the season. Of course, I got rid of the diseased yard by buying it up a little later; but the circumstance served to impress the importance of keeping all colonies in an immune condition, and, incidentally, furnished material for testing more fully the cure I shall advocate a little later in this article. The Aylesworth yard of golden three-banders, Cyprians, Carniolans, and Caucasians, which wintered well and were fed frequently, has never showed a trace of the disease since. Now, if the above experience counts for any thing, does it not clearly prove that colonies kept in the pink of condition may be immune to the disease, while weak hives, with poor black queens, are easily infected?

#### A DISCUSSION OF THE ALEXANDER AND MILLER TREATMENTS.

Mr. Alexander reports a cure from uniting and building his colonies up strong, dequeening and decelling for 21 days, and then introducing a cell or virgin queen of



Italian stock. From this and the results of similar treatments the following deductions may apply:

That the logical cure of European foul brood is composed of two parts: The *temporary* and the *permanent*, the first consisting of the elimination of the diseased brood in the hive, and the second the establishment of immunity in the colony. Alexander accomplished part one in an effective way by employing a large queenless force of *young* bees to clean house. As his hives had some diseased *sealed* brood, he found it necessary to extend the queenless period to at least 24 days. Dr. Miller, not having to deal with much sealed diseased brood, found that, in his cases, a shorter period would suffice. Mr. Alexander, having rid the hives of the diseased matter, at the same time established the immunity of the hive by starting the colonies strong, with vigorous young Italian queens. Again, Alexander's location has a heavy fall flow which is bound to give a lot of young bees for winter and the following spring. His spring location is also admitted to be exceptionally good, in addition to the fact that Mr. Alexander feeds syrup stimulative-ly. The success of the Alexander treatment in this case, as it must be in all others, was finally due to the thorough manner in which immunity was established, and also to favorable conditions, natural or artificial.

From what I have read of Dr. Miller's experience I can not believe that he had much diseased honey to deal with after he had accomplished "part one." The disease was of recent contraction to begin with, being, no doubt, treated the same season as discovered. The cure was effected during a dearth of honey when the only stores the bees had were the pure honey which they uncapped along the top-bars. Having then accomplished "part one," the getting rid of the diseased brood, the rest of the cure should have been as easy for him as it proved to be with me. Both of us, and Alexander as well, had a fall flow of honey to put our bees in good shape for the following spring, so again we have peculiarly favorable conditions entering into the success of the treatment.

During a fall flow of honey this disease will usually disappear of its own accord, in which case colonies may be put on an almost equal footing with those treated on the Alexander plan by simply requeening early in the season with Italian stock.

Why, then, has the Alexander plan failed in some cases? Because of one or two reasons: Either the man was not adapted to the cure or else the cure was not adapted to the locality. Some men are never thorough enough to accomplish real success in any thing, much less in the cure of such a contagious disease as European foul brood; and I suspect that this disease would be hard to cure by Alexander's method in a location which had no fall flow, by reason of the lack of late-reared young bees affecting the immunity of the hive the following spring. It

would be interesting, in fact, to hear from some one has tried these cures in a strictly clover location.

Hebron, Ind.

*To be continued.*

## BEE-KEEPING AS A HOBBY.

### The Bee Community.

BY F. DUNDAS TODD.

#### *Chapter Three.*

After all, when bees are kept for pleasure the chief interest is not derived from the amount of honey one gets, though that is always welcome as well as profitable, but from studying the ways of the little insects themselves. There are many misconceptions existing among ordinary people as to bees and bee nature. For instance, when the writer is about to address a general audience on the pleasure and profit of bee-keeping, almost invariably the chairman in his introductory remarks explains that he himself would like first rate to work with a colony, but he rather dreads an intimate acquaintanceship with the business end of a bee. This little joke always gives a capital opening for the lecturer, who can at once start out by explaining that the stinging end of a bee is not the business end at all—in fact, only one of many thousands of them ever has call to use its weapon of defense. Very rarely is a honey-bee offensive. The business end of a bee is the head, for in it is found the wonderful tongue with which it gathers the nectar from the blossoms. Then careful experiments and observations almost suggest it is something more than a creature of instinct; that, in fact, it can reason and act with judgment when face to face with new conditions.

#### A SOCIETY OF COMMUNISTS.

But first let us look at a colony of bees in the mass. Inside the hive are many thousands of inhabitants, the number being estimated to reach as high as fifty to seventy thousand in the hey-day of summertime. These are startling figures, and in the most natural way we are led to ask what is the nature of the bond of association that holds them together. Does a bee-hive house a herd, a flock, a pack, or a covey? Are the inhabitants merely units brought together in a more or less haphazard way like a flock? or is it a family, like a covey of pheasants? Not one of these terms fitly describes the aggregation, for it differs from them all in one important respect; it owns property consisting of combs, honey, and pollen, and this puts it into the same class with ourselves. Human beings produce articles that are not at once consumed, and these must be preserved from the ravages of natural forces and enemies, hence arises the necessity for men to live together in society. Since bees, like men, produce food for future consumption—own property, in fact—they are banded together in a form of socie-

ty. At the same time, it is a strictly family association like early forms of human society.

We speak of human society as being organized, hence there must be some definite principle dominating the grouping. Now, as a matter of fact the dominating idea is not always the same at all times and in all places; but we can group them into two broad classes—the communistic and the competitive. Modern civilization is competitive. It is a struggle for the possession of the property produced, in which the best man is supposed to be the winner. Ancient society was apparently communistic as it is to-day with the more backward races. In the communistic form of society each individual is supposed to produce according to ability and to receive according to need. The family is an example of the communistic spirit in modern civilization, and is apparently a fragment of past conditions carried over into the new.

Colony bees, therefore, are apparently in the first stage of social organization, hence they are communists. Many writers often loosely speak of them as socialists; but the term is incorrectly applied, for in this proposed form of society which many hope to see realized, while the means of production will be held in some form of common ownership, each able-bodied individual will be rewarded according to his works, so it is not so charming an ideal as the communistic one.

#### THE GROUPING IN A COMMUNISTIC SOCIETY.

In a competitive form of society, classification is along industrial lines. Broadly speaking we have the owners and the workers, and the latter are grouped according to occupation, men and women mingling together in the same calling. But in communistic society the grouping is according to sex. Man is the flesh-producer; woman provides the vegetables, and cooks the food. Man is the warrior, so woman does all the drudgery around the camp and on the march. Even in civilized communities we find isolated groups where the sex division of labor is still the custom, as among the fisher folk of Scotland and the peasantry of Europe.

The line of separation in a bee-hive is strictly according to communistic rule—that is, the grouping is according to sex. The actual producers in the colony are females; the males are concerned only with the propagation of the species, and when their usefulness in this respect is ended they are eliminated from the social organism.

In a competitive form of society, as we all know, the struggle for possession of property is not a free-for-all fight, but must be according to certain man-made rules which are dignified by the title of laws. The more prolific the production, the more numerous the rules of limitation, until, in highly developed countries, the laws cover the pages of thousands of tomes, all of which everybody is supposed to know excepting lawyers and judges in their official capacity. In

communistic societies laws are few and far between, if they exist at all, and so we naturally find in a bee-hive that there is apparently no government of any kind, and that each member does the right thing at the right time without direction or correction. So far as we know there is no crime, immorality, nor vice in a bee-hive.

While the subject of hive organization is an extremely fascinating one, the writer feels he dares not do more than outline its broad principles; at the same time, he feels he has said enough to indicate the reason why the greatest intellects of the ages have been induced to spend years in studying the economy of bee society, and why ordinary people get more deeply interested the more they know. Only in recent years has it been realized that human society develops according to laws, and efforts are now being made to formulate them.

We have learned this much, that any form of our social structure is but transient, for all the time man is modifying his surroundings—that is, his environment—then he must alter the social organism to suit the new conditions. To a student of sociology the present day is probably the most interesting period in human history. In marked contrast the colony bee has seemingly attained already the end to which the human race is moving, that of stable equilibrium with the environment. This has been secured by almost perfect control of the means of reproducing the species, for only that number of young bees is brought into existence for which there is evidently a sufficient food supply. Both race murder and race suicide are long-established rules of practice in a bee-hive whenever inclement weather conditions necessitate their adoption. Last of all, the number of consumers who are not producers—that is, the drones—is kept within safe limits, and even they are summarily disposed of when their existence is no longer a necessity to the social welfare.

Victoria, B. C.

---

#### LIME IN A CELLAR WILL NOT DRY THE AIR.

BY F. L. HUGGINS.

Referring to the footnote to the "Straw," p. 4, Jan. 1, about slaking lime in a cellar, I will say that the chemistry is not quite sound. Lime is calcium oxide,  $\text{CaO}$ ; and when exposed to the air it absorbs moisture, and the hydroxide,  $\text{CaH}_2\text{O}_2$ , is formed. In this reaction no oxygen is released (this in correction of W. H. Messinger, *Review*, 365).

This hydroxide (slaked lime) has a feature that is exceptional in chemistry—it dissolves more easily in cold water than in hot. The solution, the ordinary lime-water of medicine, absorbs carbonic acid from the air, and a thin skin of carbonate of lime rapidly forms on the surface.



Thus it is the lime-water and not the slaked lime that absorbs carbonic acid.

I can not see how slaking lime in a cellar would dry the air unless the cellar were airtight. For the purpose of keeping articles free from moisture in closed vessels, calcium chloride ( $\text{CaCl}_2$ ) is generally used, as it has a powerful affinity for water.

#### NON-SWARMING BEES NOT WANTED.

I am very much interested in the articles on non-swarming races of bees. While interested I am not at all in sympathy with the idea, and think it is time wasted. I believe that, if a non-swarming bee (by that I mean one with no inclination to swarm) were produced, such a bee would be useless as a honey-gatherer. I believe the God-given instincts of swarming and storing honey are inseparably connected; and if one is broken up, the other will be destroyed.

I do believe with all my heart that we should make every effort to prevent swarming. The old English definition of "prevent" just expresses my idea—that is, we should *anticipate* swarming. If by shaken swarming or other methods we can make the bees believe they have swarmed, and thus satisfy their instinct, then we are assured of a big yield.

Wilmington, N. C.

[As Mr. Huggins is superintendent of a chemical works we are sure that he knows whereof he speaks, and we are glad to stand corrected.—ED.]

#### PRICES OF HONEY IN TEXAS.

Louis Scholl's Figures Correct; Bulk Comb Honey Becoming More Popular.

BY M. E. PRUITT.

I beg to differ with Mr. Sueltenfuss in a gentle sort of way anent the "real price of bulk comb honey in Southwest Texas," as stated on page 680, Nov. 1, 1910. Mr. Scholl was correct as to the prices he stated on page 580, Sept. 15. We averaged 10 cts. for our bulk comb honey, and 8 for extracted; and most of the time we did better than that. We sold our white catclaw bulk comb honey at 15 cts., and the extracted from the same source at 12. Then as the honey became darker we dropped to 12 cts. for the former, and to 10 for the latter. Perhaps Mr. Sueltenfuss' honey was not as good as ours, or his market in San Antonio not as "gay." Something is radically the matter down there, surely.

Last season's crop of honey was short, very short, on account of the long drouth, and the demand was and is far over and beyond the supply. Not many bee-keepers, in this part of Texas, any way, will have much "extracted honey on hand" to keep until cool weather.

The season of 1909, when the honey crop was better than last year, we Texans had all our honey sold by Nov. 1, and, if I mis-

take not, we also had the crop of 1908 sold by Nov. 1 of that year; and the 1908 crop was a bounteous one. Then we averaged 10 cts. for the bulk comb and 9 for the extracted. The point is this: If the crop is bounteous, one can not obtain a high price; but if there is a shortage, high prices are obtainable as a consequence.

Mr. Sueltenfuss remarks that the market for extracted honey is dull. Yes, and it will probably remain so—that's just one more proof that bulk comb honey is rapidly coming into its own—it is becoming more and more the standard style in demand.

Eola, Tex.

#### BEES TRANSFERRING LARVAE.

An Apparently Clear Case in a New Zealand Apiary.

BY H. BARTLETT-MILLER.

It seems pretty well proven that bees will remove and even steal eggs upon occasion; and, although I have not noticed any reference to their transferring larvæ, yet I have had two unmistakable instances of their having done so in my own experience. During September, 1909, I tried raising queens very early in the season, in the Swarthmore swarm-boxes. I used combs of honey and pollen, making absolutely sure that they were destitute of eggs. The third comb, for the water, had not been inside of a hive for over six months. When I transferred larvæ to the cell-cups all were rejected. I supposed the bees were sulking; but the next day, when another transferring was similarly treated, I returned the bees in the evening to their hive, and then found three cells started about the center of the comb that contained the water—that is, the one which had not been in a hive for six months. There were no empty cells in either of the other combs except at the corners. There can be no possibility of mistake in this case, for, even allowing that there might have been larvæ in the honey and pollen combs, it remains true, nevertheless, that the bees removed such larvæ to cells on this comb that had been out of use for six months.

The second case occurred during the same month, 1910, and the combs used for honey and pollen were old ones, saved from the previous autumn crop, that were sealed over solid, the empty comb used for water, in this second case, having been out of use all the winter before. The swarm-box was one of my own manufacture, and was of the conventional pattern, except that the wire cloth on the bottom covered a space of only 8 inches by the width of the box, the rest of the material being wood. I had fed this colony regularly for two weeks previous, and when grafting I put larvæ in only 11 out of 32 cell-cups. To my disappointment, not one was accepted, although the cover of the box had warm woolen cloths piled on it, about 6 inches deep, and tied around the

sides at least 6 inches down below the cover. A second grafting the next morning being similarly removed, I dumped the bees, that evening, before their hive, disgusted with attempting Alexander's instructions for raising early queens. Imagine my surprise, then, at finding 11 nice queen-cells started on the lower edge of that old dry comb close to the wire-cloth-covered opening—exactly the number of larvæ that I had transferred at the first grafting. All these were too well advanced to include any of the second grafting of that same morning.

Now, I wonder if the bees moved those larvæ for the purpose of giving them fresher air. It certainly looks like it, for the top and sides covering the other boxes must have excluded any chance ventilation from cracks; anyway, the bees moved them.

Kihikihi, Waikato, N. Z.

### BEE-KEEPING IN THE SUGAR-CANE REGIONS OF LOUISIANA.

BY ARTHUR DROSSAERTS.

I have been an amateur bee-keeper for three years here in Southwest Louisiana. South Louisiana, with its mild winters and wooded hills, and abundance of white clover, should be a paradise for the bee-keeper. Yet we have many drawbacks. First, the white-clover season (end of February, March, April, and beginning of May) is generally a season of drouth, dust, and daily high winds. Second, in the summer months we used to rely upon the cotton flowers; but the boll-weevil has played havoc with the cotton, and a cotton-field is getting to be rarer and rarer. Third, I am living in a sugar-cane county, with intense cultivation. Nothing is finer than our sugar-cane fields; but the miles and miles of waving and gracious foliage mean absolutely nothing to the foraging bees.

My best hive gave me three supers of fine white honey; but I must say that most probably a professional would go me a few supers better. I am satisfied with one or two supers per hive.

Fourth, in summer (June and July) we have showers daily, almost incessantly, and you know what this means to the bee.

I have a friend here who has gone into the bee business for dollars and cents. He has home-made hives (far from up to date). He goes around selling chunks of honey, and he does very well. But this sugar-cane country will never be a real honey-eating country. The fine cane syrup, home-made, is a real rival of honey.

I am not in the bee business at all for profit—only for pleasure; and I give away or consume at home whatever the bees produce. By the way, our Louisiana hybrids are about the meanest fellows one wishes to meet. Nothing can subdue them. Smoke seems to have no effect on them, and no one can venture safely around the stand for two

days once they have been interfered with. I shall have to Italianize the whole lot this summer.

Broussard, La.

### THE CLIMATE OF GREAT BRITAIN AND UNITED STATES COMPARED.

BY FREDERICK MARTIN.

Under the above heading in the January number of GLEANINGS Mr. D. M. MacDonald would lead Americans to infer that the British method of wintering is superior to the American. The superstructure of his argument may be right enough, but it appears to me to be built upon a false foundation; and before any one on this side the Atlantic tries to put the plan into practice he should think out the case clearly, and be careful of any kind of jump at favorable conclusions.

Mr. M. says, "But from several interesting causes which I need not dwell upon, we really differ little in climatic conditions from you." This is the foundation of the case as applied to America, and this statement, as far as it affects wintering of bees, is seriously in error. Mr. M. writes from Banff, and, taking it as a cold sample of the British climate, it is well to note that even there the winter is nothing like as severe as the winter at, say, Philadelphia, and is simply nowhere compared with winter in the Middle West. To attempt a British wintering plan under these conditions is a very risky venture indeed.

In Britain, and everywhere from London northward, the climate is pretty much the same—zero temperatures are unknown. If the thermometer gets down to 8 or 12 F. the whole country looks blue; whole columns in the newspapers are filled with stories of the "very severe weather," and people feel worse than they do over here when the mercury drops to five or ten below zero. The grass is green all winter in some places. Cabbage remains in the gardens all winter; turnips flourish in the fields, and sheep remain outside feeding on them. Borecole or kale (a plant not half enough known in America) is really at its best after standing outside all winter. Even brussels, a kind of cauliflower, will grow outside all winter. Contrast all this with the winters of the eastern part of the United States, and it must be manifest that a system which will winter bees in Britain might, and likely would be, ruinous, when applied to bees in America.

I do not write to discourage attempts at testing Mr. MacDonald's plan; but that plan must not be followed on the assumption that "Britain really differs little in climatic conditions from America." The difference may not look great in a list of mean temperatures; but it is generally enough to require different management.

Philadelphia, Pa.



## Heads of Grain

from Different Fields

### Difficulties in Manipulating Chaff Hives Having Tight Bottoms.

We use the Hilton chaff hive. It winters the bees well outside, and keeps them warm in spring, and it is just right during the hottest weather. But the trouble is, I am a beginner; and in studying up the different methods I find that a different make of hive is generally described, which makes the methods in question impossible with this hive.

A weak colony is recommended to be set over a strong one. We can't do so with this hive, and the Alexander feeder seems to be popular for feeding daily in the spring; but our hive, having a closed bottom, is not adapted for this work.

Muskegon, Mich.

H. A. PORTER.

[Chaff hives have a great many advantages over single-walled hives, especially in localities where bees winter in them on summer stands so admirably; but, of course, the tight-bottom-board feature prevents such hives from being used as conveniently as single-walled hives having loose bottoms. For this reason the new loose-bottomed chaff hive was brought out, so that methods of management for single-walled hives would apply equally well to the double-walled style.

However, even with your hives that have tight bottoms, you can very often find a way out of the difficulty. For instance, in order to follow the Alexander plan for building up weak colonies you might have a few single-walled bodies on hand in which you could temporarily transfer the combs and bees for setting over a strong colony. In many other ways a few single-walled bodies are very handy in an apiary where tight-bottom chaff hives are used.

Of course the Alexander feeders can not well be used on your hives; but the Doolittle division-board feeder could be used without any trouble.—ED.]

### Drawing Stale Air Out of a Cellar Instead of Blowing Fresh Air In.

Will you allow me to suggest that, next spring, when the bees get uneasy in the cellar, instead of pointing the fan into the cellar and so trying to blow fresh air into a compartment full of air, you point it the other way, and so suck the stale air out—no fear of any less air being in the cellar. By the first way there is more stirring up of stale air than any thing else. By the latter, all air that is shifted is replaced by fresh. This can be modified, and made more effective by having a horizontal partition in opening, or an opening near the floor and one near the ceiling, and putting the fan at either top or bottom opening (but always pointing out) according to whether the lower (cold) or higher (warm) air is to be expelled. Without any further explanation I think you will see the point clearly. Pure air in the cellar is of more consequence than the state of the thermometer.

My next venture with bees will be in the northern part of this State, and I will take any old cellar and keep the bees quiet by pure air—raise and even lower the temperature by this principle of forcing air out of the cellar, using a stove outside for the motive power. I think I have said enough to make myself understood by you. To go into the matter fully would make the letter too long.

W. H. MESSENGER.

Port Richmond, New York, Dec. 9.

### Moving Bees in Cold Weather.

While I have been a bee-keeper many years I have had no practical experience in moving bees, and should like to have you give me what information you can in regard to the following: I wish to move about 15 colonies of bees a distance of about 25 miles by wagon or sleigh. I should very much like to do this before warm weather; in fact, it is almost a necessity, owing to peculiar circumstances. Can you suggest any way in which this could be safely done without danger of breaking down the

combs and ruining the colonies? These bees are in ten-frame Langstroth hives. A. J. W.

[When cold weather is on, it is desirable to move bees as quickly and with as little jar as possible. On a bad rough road, unless the hives are well cushioned on straw in the wagon or sled, there is danger of breaking out some of the combs during the hauling. We would, therefore, select a time when the temperature is not too low, and yet when it is cold enough so that the roads will hold up. If the bees can be moved on a sled, and the sleighing is good, you would have very little difficulty. We would advise you even then to put a quantity of straw in the bottom of the sled-box and the hives on top. Take the bees out of the cellar; load them quickly, and drive as fast as the roads will permit to destination, and then unload.

Of course, the usual precaution of fastening the frames, if they are not self-spacing, should be observed.

Even should the weather be severely cold, if the bees are moved quickly, and the roads are good, there will be no danger of breaking down the combs. So far as the bees are concerned, they can stand any degree of low temperature for the short time they are out; indeed, we doubt very much whether it would do them any harm if they were left out several days, even in single-walled hives; but they should not be moved then, as the combs would be sure to break down.—ED.]

### Why Are the Bees Dying Off So?

Last January I bought two strong colonies of Italian bees. When winter approached I made a packing-case and put them in it, made so that there is five or six inches of dry leaves around the hive. I also made a porchlike projection which I have had partly covered, so that the cold wind could not strike the entrance. The entrances were contracted down to 1 x 1½. For two or three weeks, or since genuine cold weather set in, I have noticed that the bees want to crawl down on the bottom-board, and out on the porch I made. I have swept away two handfuls of dead bees every week; and if they are going to die at this rate I shall not have any by next spring. Do you think the ventilation is poor, or is it too warm in the hive? or what may the trouble when the bees can't be stirred in the middle of the winter? Can bees be fed in winter if they need feed?

Attica, Ind., Jan. 16.

ANDREW BERGHIRST.

[From the general description given, we take it that you have not provided for sufficient ventilation. The entrance should not be less than 1 x 2 inches, at least. We usually prefer to have a slot about ¾ x 8 inches. We can not understand why your bees are coming out so, even with the entrance that you have provided, unless it is that the food is bad or the portico is so constructed that the bees are confused on returning, lie outside, and die. We would suggest, for the present, enlarging the entrance to see if that helps it any. You will always find, however, that there will be some dead bees in front of an entrance of a normal outdoor colony, and there will be quite a quantity of them lying in front when it warms up after a cold spell. You can feed hard candy in winter; but don't give syrup.—ED.]

### Wages of Apiarists.

I should be glad if you would give me some idea as to the wages paid to experienced bee-keepers, such as myself, in the United States. I have been in the bee business at Berlin and Brussels for three years in connection with a 400-colony bee-yard, and have had personal oversight of 200 colonies. I am also experienced in bottling honey and packing for shipment, as we ship two carloads each year, all over the West.

Stratford, Ont., Jan. 9.

C. A. JONES.

[The wages of bee-keepers varies very materially. Every thing depends upon the man, the length of his experience, as well as his general all-around ability. The very highest-grade man, one who is capable of going ahead or taking charge of a series of yards, may bring as high as three or four dollars a day; but as a general thing a helper does not get much over \$2.00 on a basis of ten hours. One who is familiar with bottling honey and selling the same, would, of course, bring a higher price than one who knows only the art of producing it.—ED.]

### Rearing a Queen above an Excluder with which to Supersede Old Queens.

Do you think it advisable to requeen by rearing a queen above the excluder, and then allowing her to go below into the brood-nest? Which of the two queens would survive? I see some writers say both would live in the same brood-nest.

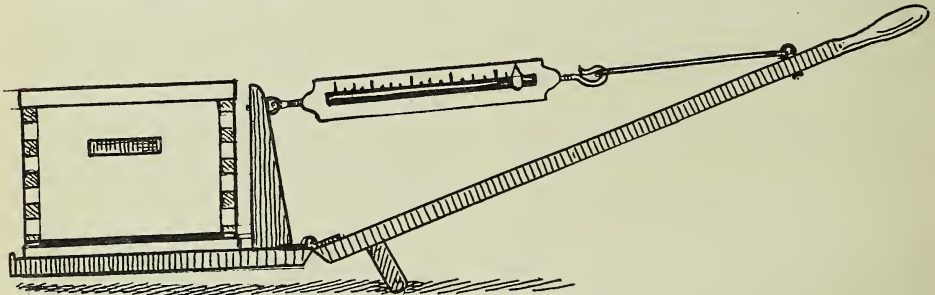
New Castle, Col., Jan. 2.

S. R. STEWART.

[Under some conditions it is possible to requeen above queen-excluding zinc, in the manner you indicate; but as a general thing you will find it much more practicable to rear the queens in separate nuclei, remove the old queen, and introduce the new one. The difficulty with the plan of rearing queens above the excluder is that there is almost sure to be a battle royal between the old queen and the younger one. While the latter will be the probable victor, she might be the one to be destroyed. When queens grapple in a mortal combat, there is some element of chance. The one that gets the best hold, or, to use the parlance of the day, "the drop on the other fellow," is the one that is the winner. Or, to put it another way, the queen that gets the best grab, so that she can deliver her sting, will be the victor whether she be the older or the younger. In a battle between a virgin queen and a queen in the height of her egg-laying, the odds will be, as a rule, in favor of the former.]

### McIntyre's Hive-weighing Device.

Mr. McIntyre has sent me a drawing of a weighing-device as shown below. He says it weighs but 5 lbs., and that with it he can weigh 100 colonies in less than an hour. It certainly looks good, and those who practice weighing their hives each fall might well investigate its merits.



M'INTYRE'S HIVE-WEIGHING DEVICE.

The directions for use are, briefly, as follows: Take it on one hand as you would a fire-shovel, and slip it under the hive. Press down on the handle until the hive is raised clear from the hive-stand, and it will give the correct weight.

Mt. Joy, Ontario, Can.

J. L. BYER.

### Will Bees Cross a Mountain in Search of Honey?

Will some one inform me whether bees will cross a mountain varying in height from 500 to 1000 feet, and a mile to a mile and a half in width, in search of honey-yielding blossoms? I live in a hollow at the foot of a mountain of this description, the two points extending about a mile toward the west, and being about a mile apart. My bees can fly westward as far as they please, without crossing a mountain, but are fenced in by mountains on the north, east, and south.

#### HONEY FROM DOGWOOD-BLOSSOMS.

In the spring of 1901 I noticed bees working on dogwood-blossoms on a tree in my front yard. They worked there several days. I had never seen bees work on these blossoms before, neither have I noticed them since. I thought perhaps there was honey-dew on the blossoms.

Huntsville, Ala., Jan. 6.

H. M. WEBSTER.

[It is our opinion that bees would not cross the mountain, especially if it were a mile or a mile and a half across it. If you desire to get the benefit of any flora on the other side you had better move a part of the bees over. As a general thing, bees will not fly over a mile and a half. While they will

sometimes go two miles, and even three when the nectar-yielding blossoms are distributed evenly over the distance, they will rarely go over an obstruction 1000 feet high, and a mile or a mile and a half beyond.

Some plants yield nectar only rarely when conditions are just right. It is hardly probable that your bees were gathering honey-dew from the blossoms. Real honey-dew, when present, is found all over every thing. If the bees were working on the blossoms and not on the leaves, you may rest assured they were after nectar rather than honey-dew.—ED.]

### A Colony Wintered in a Warm Room with an Entrance out of Doors Gave Fine Results.

Mr. Root:—I note what you say on the subject of indoor wintering of bees, page 764, Dec. 1. My experience does not agree with yours. My best test was made in the winter of 1907. On July 25, 1907, I took a colony of medium-strength Italian bees, divided them five frames each, giving each division a young Italian queen. I put one colony in the house in a small room off the main part of the house, the other one in the back lot. Beginning July 25 I fed each of them  $\frac{1}{2}$  pint of syrup each evening for ten days. They both built up, filling each ten-frame hive well with bees and plenty of stores for winter. The one in the lot I packed in a chaff-case in November.

The colony in the house had an entrance  $2\frac{1}{2}$  inches, always open. The main part of the house kept from 55 to 70 degrees; but the room where the bees were was about 10 degrees cooler. They did not consume an extra amount of food, as you report, as I took from them in March two full frames of honey, substituting frames with full sheets of foundation instead, and took the same amount from the colony

outdoors, also giving frames with foundation in stead.

In April the house colony seemed to have double the number of bees, and the results during the season were fully double those of one out of doors, owing, I am persuaded, to their strength early in the season. The house colony produced 222 sections of fine honey, and I took from them seven nuclei that built up all right for winter.

One thing I observed closely, and made careful note of. The house bees never took a flight on any day nor earlier in the day than the outdoor bees; and on one occasion the latter came out an hour earlier in the day. From my experience I believe it profitable to put bees in a room or house kept from 50 to 60 degrees, with the entrance open to outdoor air.

Urbana, O.

O. J. JONES.

### Two Bad Cases of Laying Workers.

The past season, for the first time in my fifteen years of bee-keeping I had two pronounced cases of laying workers. Colony No. 22, at the beginning of the honey-flow, had no less than 47 capped queen-cells. Of course, I expected that a swarm would be cast; but on examining the combs a few days later I found all the cells destroyed and a fine young queen present. I supposed then that every thing was all right; but on making another examination a week later I found the young queen was gone, so I introduced another one, in a mailing-cage, in the regular way. At first she was accepted; but a few days later the bees again got rid of her. I had no



more queens or cells, so I sent for a queen, and by the time she arrived the ten-frame hive was full of eggs, there being from two to six in every cell. I did not know what to do; but on following closely the directions in the A B C and X Y Z of Bee Culture, I was soon rid of those laying workers. The new queen was then accepted all right, and began laying in a few days.

Colony No. 21 had a fine year-old queen. One day while examining the combs I found the brood-chamber full of eggs from laying workers, and even in three combs in the supers there were anywhere from two to six eggs scattered all over. This colony was given the same treatment, and a laying queen introduced.

When distributing the brood-combs of bees all around the apiary, as directed in the above-mentioned book, it is well to smoke the bees on the combs thoroughly, so that there will be little fighting and but few bees lost.

What puzzled me was to learn what became of the queen in colony No. 21. The first queen that I mentioned might have been lost while out on her mating-flight; but I am at a loss to understand the loss of the other one, as there were no signs of any kind that the bees were preparing to swarm or supersede their queen. Some may say that laying workers are the result of carelessness on the part of the bee-keeper. I can not agree with this, for all of my colonies are examined at least every two weeks. Hereafter I shall never leave a colony without a queen more than one week without either giving it brood with which the bees can start queen-cells or by providing a laying queen.

La Crescent, Minn.

G. H. BARBISCH.

[The queen of No. 21 possibly died a natural death. If the virgin that followed her was lost in mating, laying workers would naturally develop.—ED.]

#### Normal Loss of Bees from Fourteen Colonies in a Cellar; How to Know when Bees are Wintering Well.

Is one quart of bees per month too much winter loss for 14 colonies? When I swept up the dead bees and threw them loosely into a quart measure they just about filled it from Nov. 25 to Dec. 1. I suppose I shall not lose as many bees per month during the remainder of the winter. Is this correct? My cellar is dry, and the temperature stays between 40 and 43 degrees. During the first warm weather it does not go higher than 45 degrees.

RETURNING SWARMS TO THE HIVES THEY CAME FROM.

Last year I put two or three swarms back in the hives they came from, first placing an Aller trap in front of the entrance and shaking the swarms down on the alighting-board. The bees went back in, although I kept the queen and drones outside. Afterward the whole colony seemed to sulk, and, all together, the plan did not seem very satisfactory.

New Bethlehem, Pa.

J. M. WALKER.

[The winter losses resulting from bees flying out of the hives and dying on the cellar bottom will be comparatively light during the fore part of the winter, and very much heavier toward spring. In estimating the amount that might be considered a normal loss of bees per month we must take into consideration the time in the winter. One quart of dead bees during December, from only 14 colonies, we should say would be rather large. During the first month, and the one following, the loss from so few colonies, we should estimate, ought not to exceed one pint per month; but we would not consider it bad wintering by any means if the loss were a quart for each of the two first months, and possibly twice as much for the next three months. Much will depend on the strength of the colonies. If the hives are full of bees, every comb covered, we should naturally expect a much larger mortality than in a case where the colonies were light. It is impossible to make any absolute estimate of the normal loss per colony during winter, either for indoor or outdoor wintering. If, when one goes into the cellar, he finds every thing apparently quiet, no roaring of any kind, and the air reasonably sweet, he may conclude the bees are doing well—yes, they are wintering perfectly. On the contrary, if the air smells of dysentery, and the bees are making considerable noise, and buzzing down on the cellar floor every few seconds he may

conclude his bees are not wintering well. Indeed, he may expect a heavy loss before spring.

It never pays to put swarms back into the same brood-nest from which they issue. When swarms are hived back on the same stand, the old brood-nest must be removed and an empty hive containing empty combs or frames of foundation should be put in its stead. The supers, if any, that were on top of the old hive should now be placed on the empty hive now on the old stand.

Yes, sir, 'e; swarms will sulk almost every time if you hive them back in their old quarters. You must make a radical change in the brood-nest before they will stay contented and go to work.—ED.]

#### Borrowing Bees; Plurality of Queens in a Hive is Not Practicable; Queen-cell Protectors.

In "Alexander's Writings," p. 75, is mentioned, in connection with queen-rearing, the borrowing of bees from several strong colonies for one day. How is this done, the bees used, then returned?

Pages 80–82 speak of a plurality of queens in one hive; and it has been mentioned in GLEANINGS that Mr. Alexander's son had a method of introducing several queens, but I have been unable to find it.

In introducing unprotected queen-cells to nuclei, made by taking two couples or three frames of bees from a queenless colony, are the cells likely to be safer by confining the bees for a day or so?

Auckland, N. Z., Nov. 14.

S. C. RHODES.

[Mr. Alexander meant, by "borrowing bees," taking from any colony, preferably one that is queenless, anywhere from a pint to a quart of bees. These bees can then be returned providing they are not used with any other bees.

We would not advise you to try the scheme of more than one queen to a hive. While, apparently, it worked for Alexander, the great mass of our readers have since declared that it was a failure with them. The method of introducing by Frank Alexander was subsequently described in GLEANINGS, Sept. 1, 1907, page 1136.

We usually advise putting queen-cells in queen-cell protectors. While cells can be given, a good many times, without danger of their being destroyed, it is usually safer to use the protectors.—ED.]

#### Frames Smaller than the Langstroth; Profits from Bees

A bee-keeper told me that a frame 13½ in. long and 9 wide, inside measurement, would be about right for this northern climate, and even better than the Langstroth frame. His reason was that bees have more brood than they can cover in L. frames, and when cold weather comes the brood gets chilled and dies. What is your opinion?

Is it wise for a beginner to try stimulative feeding? If so, how much should he feed?

What is the advantage of a loose bottom-board?

Should 100 colonies in a good bee country produce \$1000 in honey and wax? or what is the average the practical bee-keeper might expect?

Maeton, Ont., Jan. 6.

N. ALLINGHAM.

[A great many different sizes of frames have been tried, but the majority of bee-keepers have decided that the Langstroth dimensions can not be improved. The fact that hives containing frames of Langstroth dimensions are standard is also a big point in their favor; for when bees are sold on odd-sized combs the selling price is always lower.

In our opinion a smaller frame would not prevent brood from chilling in the manner suggested, for the amount of brood depends on the queen and on the bees, and a smaller brood-nest is apt to result in a smaller cluster.

Stimulative feeding in the spring is considered by most bee-keepers a questionable practice, it being much better to provide a little more than enough stores in the fall to carry the colony over until the honey-flow begins in the spring or early summer.

With loose bottom-boards the brood-chamber can be manipulated a little more easily than when the bottoms are fast. There are several changes that are often desirable, and that can be easily made with loose bottoms. However, the best plan of all is to use crate staples on the sides, fastening the body to the bottom, so that, when occasion demands, the two can be separated very easily.

One thousand dollars from one hundred colonies in a season is a much larger return than the

average successful bee-keeper will make, five dollars per colony being a high average as the seasons run. Of course, ten dollars' worth of honey could be easily produced per colony in a good season, so that for gross receipts one thousand dollars per one hundred colonies in a good season would be considered as doing remarkably well.—ED.]

#### Dysentery in the Cellar; What to Do.

I put my bees in the cellar the day before Thanksgiving. They had a good fly that day, and went in dry and nice. I have a very large cellar. Most of my bees (116 colonies) are on a 16-inch stand, single tier. They have been very quiet ever since. The mercury started in at 45, and is now down to 42, and no light whatever comes into the cellar. It has no windows nor vegetables in it. But the cellar seems to be on the damp order. The dead bees on the ground are covered with white mold. Some are moldy about the hive-entrance; some hives have water running out of their entrances ( $\frac{3}{8}$  inch by the width of the hives). Last year was almost a no-honey year here, but we had lots of honey-dew. I expected to put my bees out for a cleansing flight at the first opportunity, after being in one month; but there has not been a day when they could fly since putting them in. Some of my bees are spotting the hives badly now. Will it do to set them out with snow on the ground? How high must the mercury be? How about the wind?

Cedar Falls, Ia., Jan. 19.

E. E. RICH.

[You do not say any thing about what means of ventilation you have, if any. While the temperature (42 to 45) is good so far as it goes, if there is a lack of ventilation, or no means of it, by which the bees can get fresh air, you will discover uneasiness—especially so if your bees had been gathering honey-dew during the past summer. The probabilities are that the real exciting cause of the dysentery is bad food. This, coupled with lack of ventilation, may cause heavy losses among some of your colonies before spring. If the temperature should warm up to 50° or higher, outdoors, and the sun should shine, we would advise taking the bees that are affected with dysentery out for a flight, then putting them back in again as soon as they have gone into the hive at night. The objection to giving the bees a flight, if there should be any snow on the ground, is that large numbers of them would get chilled, lodge on the snow, and never get back. If, however, the snow should melt off within a few hours we would leave the hives out; and if there should be a warm atmosphere the next day those bees that were chilled and on the ground might warm up, take wing, and return to the hives—that is, providing they had not been chilled to death the day before. Bees will stand a gradually falling temperature, but not a sudden change.]

In regard to the ventilation, if you have made no special provision we would advise opening the cellar-door occasionally nights, and closing toward morning. It may be necessary at such times to put artificial heat in the cellar to keep the temperature from dropping too low. Put in a small drum stove and connect it with the chimney-flue. Do not put in a kerosene-lamp nor any thing that consumes the oxygen in the room, as this will only aggravate the condition. The drum stove will help to dry out the cellar.

Taking it all in all, a warm day and a flight for the bees is the only thing that will give relief to those affected with dysentery, and this may be only temporary. The honey-dew in the combs should have been extracted, and the bees should have been fed sugar syrup before they were put into the cellar.

We do not think the moisture that you report would do any harm, other conditions being right. The moldy dead bees on the cellar bottom do not necessarily indicate any thing serious.—ED.]

#### Another Switch Bottom-board Similar to That Devised by J. E. Hand.

By late numbers I see that Mr. J. E. Hand has devised a double bottom-board. I have almost the same thing except that mine is a hive-stand as well as a bottom-board, and the construction is somewhat different, although the lever arrangement for switching the bees back and forth is almost exactly the same. Mr. Hand is ahead of me, however, in getting his outfit into practical use. I had my plan

perfected in 1909, but sold out and went to another county, and consequently did not get one of these outfits of mine ready to test last season. As soon as I could, however, I made one according to the rough sketch that I am furnishing. I also have a feeder in combination with my bottom-board, so arranged as to be filled from the outside.

I conceived my first idea from the Scholl plan of working two hives, and I got up the switching device to make the manipulation more convenient.

Madison, Kan.

J. H. HENDERSON.

[The sketch that Mr. Henderson furnished shows a very striking similarity to the Hand switch bottom-board. All this only goes to show that two different parties may work out almost exactly the same thing at the same time.—ED.]

#### Granulated Sugar Tainted with Kerosene; would it be Safe to Feed Bees?

I am able to purchase a quantity of granulated sugar of the railroad company for a mere song. This sugar is tainted with kerosene, but is not bad, although one can detect the coal-oil odor on it. Would it be safe to feed it to my bees, or would there be danger of killing the brood and tainting the hives? Could I spread it out thin and allow the oil to evaporate? or would making a syrup of it and boiling it thoroughly dissipate the oil and make it a safe feed?

Nevada, O., Jan. 25.

F. J. ARMSTRONG.

[We see no reason why you could not use this sugar. The slight taint of kerosene certainly would not hurt it in the least, although the odor of it might be a little offensive to the bees. If they take the syrup you may rest assured it would do them no harm. However, we would advise you to secure a small quantity of it, melt it up, and feed it to the bees. In order to do this, bring the bees inside of a warm building, then place a feeder of the syrup on top of the hive. If they take it down readily we do not think you will need to have any fear of its injurious effect upon the bees.—ED.]

#### That Odor from the Hives.

Some years ago, while living in the South, our early honey crop was a failure and we had to feed the bees. In the fall we had a splendid crop of honey from goldenrod and aster; and during the flow the odor from the hives was rank. A young bee-keeper came three miles to see me, and was greatly worried, as he thought he had foul brood. He had examined the bees, but could not find any indications (beyond the odor) as per instructions in bee-books, etc. I suggested going to see my bees; and when we were a few feet from the hives he exclaimed excitedly, "You have got it too." However, I showed him that the odor was from goldenrod and asters by taking a handful of the blossoms of the latter and rubbing them in my hand and letting him smell the crushed flowers.

He thought the honey would not be fit to use; but I told him to leave it on the hive as long as possible or till the approach of cold weather, and it would be good. And it was.

Elwood, Ind.

D. NEILSON.

#### Conditions when a Virgin will Supersede an Old Queen.

In reading Doolittle's book on queen-rearing I note that, when a young queen is raised in the upper story, if by any chance she gets in the lower story she always kills the old queen. Now, what I want to ask is this: Why couldn't I requeen by putting a cell in a nursery cage right in the hive where the old queen is, and on her (the new queen's) hatching would she not supersede the old queen? and would not this be the easiest way to requeen?

Sabetha, Kan.

FRANK HILL.

[There is a possibility that you might be able to requeen by the plan described, but we would not advise it. The probabilities are that the old queen would kill the young virgin while she was soft and weak, just as she emerged from the cell. If the virgin could be protected until she were three or four days old she would be more than a match for the old queen. As a general thing we advise bee-keepers to take the matter into their own hands, remove the old queen, and then give a cell or a day-old virgin to the colony.—ED.]



## Our Homes

By A. I. Root

Put on thy beautiful garments, O Jerusalem. . . . Loose thyself from the bands of thy neck, O captive daughter of Zion. . . . Ye have sold yourselves for naught.—ISAIAH 22: 1, 2, 3.

When we arrived here about the first of November I noticed, almost the first thing, that our Bougainvillea was almost defoliated by the sort of measuring worm I have before mentioned. Instead of being a "thing of beauty" it was just almost an unsightly weed. We first tried hand-picking; but as the worms have the queer fashion of mimicking lifeless twigs it was almost impossible to detect them; and, although I killed dozens of them every day, we didn't seem to get ahead of them at all. Somebody suggested Paris green; but it proved of little or no avail; but another friend told me arsenate of lead would stick to the leaves, and *must* prove death to any leaf-eating insect. You may remember I spoke of this insecticide in connection with the flea beetle on my wonderberry-plants. I didn't try it, because our Medina druggists couldn't sell less than a can of it, it being a sort of paste. Now, although much has been said about the extortion of Florida merchants, especially to new comers from the North, I found here no trouble in getting a dime's worth for my experiment.

As I was somewhat vexed with the contrary worms (that *refused to die*) I took my spray-pump and gave all three of my vines a pretty severe spraying. Well, it fixed the worms, sure, and came pretty near fixing the plants also. They presented a sorry appearance, sure, until about the first of the new year; and to-day, Jan. 25, when I went out and stood by the front door the words of the first sentence of my text "sort of" bubbled up almost involuntarily. The plant had so far recovered from its fiery ordeal of worms and poison that it was indeed *once more* "putting on its beautiful garments." Why, I would almost take a trip to Florida to see this beautiful plant in full bloom, right out in the open air, in all its bewitching beauty, if for nothing else. It is a rank hardy grower; and the new foliage, when it first comes out, makes it a handsome plant, even before the gorgeous bloom covers and encircles it.

Last evening, before retiring, I spent some time reading from the dailies about the recent revelations in regard to buying and selling votes away off in beloved Ohio, the land of my birth. The saddest part of it was to read that not only men who stood high in office, and in the estimation of people generally, but even ministers of the gospel, veritable leaders in "the paths of righteousness," had confessed themselves guilty of this terrible offense against not only *good* government but *all* government. As I

looked again at the Bougainvillea I breathed an inward prayer that out of it all, and *through* it all, *Zion* might "awake" and once more "put on her beautiful garments" of honesty, truth, temperance, and virtue. For years past the Anti-saloon League has been perplexed and mortified to find that the men who professed to be all that is noble and good, should, in some unaccountable way, at just the last moment, be found over in the hands of the enemy of all that is good and pure and true. We guessed where the trouble was, but there seemed no way of getting hold of evidence. May the Lord be praised that our prayers for years past are being answered. We have at least *one* fearless and righteous judge who "dares to be a Daniel," and who keeps right on enforcing the law, even though anonymous letters have been received threatening his life, if he does not "let up" in his crusade to punish the wicked. May God be praised, also, for the number who have come forward in a manly and honest way and "owned up" and "taken their medicine" without making any wry faces. Truly, there is a prospect of a wholesale throwing-off of the old-time "filthy rags," and donning the "beautiful garments" of the new Jerusalem. Is it not indeed really true that we *are* "shaking ourselves from the dust" and "loosing ourselves from the bands" that have been about "the necks" of at least some of us?

The principal excuse I have heard for this kind of work is that everybody *else* was doing it. These two ministers who confessed probably received such a small salary they just *had* to do as their people did, to live. It seems to me a little funny that a vote-selling church should be able to pay a minister at all. Very likely it was the *women* of the congregation who paid the salary. And, by the way, if I have got it right, there was one township (or precinct) where every single voter was disfranchised for five years; the W. C. T. U. women sent in a plea to permit them, under the circumstances, to do the voting. May God hasten the day when good women shall do at least *some* of the voting.

And now for the concluding words of our text: "Ye have sold yourselves for naught." In speaking of Senators Lorimer and Holtslaw, on p. 600, Sept. 15, last year, I quoted, "A reputation was swept away that the man had toiled 40 years to build up, all for the sake of 4700 dollars (*dirty* dollars) that the man *did not* need." Well, just as I write, an effort is being made to let the man go without punishment, although he himself *confessed* to the crime. The affair of Senator Lorimer has also been submitted to a committee, and this committee (?) has "whitewashed" it over and reported no cause for action. "It won't do," so some of our big men say, to punish crime and enforce the laws when the offender stands "away up" in the social scale; but, may the Lord be praised, the *people*, the good *honest men* of our land, are making such a

protest it looks very much just now as if the "whitewash" were not going to stick.

Suppose when my beautiful plant was apparently ruined by worms and poison I had *whitewashed* the leaves and tried to paint some more flowers on it; would anybody have admired it? Would I have been moved to say, "Put on thy beautiful garments, O Jerusalem?" Suppose a man, a candidate for office, whose past record is too black and filthy to be spoken of in print, should, with the money he has gotten (probably by robbing our nation) — suppose such a one as he should, with this money, get whitewashed (white garments are, as a rule, an emblem of purity, you know)\* would any one be fooled by his "beautiful (outside) garments"? Yes, bad men *can* repent, and I do believe Holtslaw honestly repented when he confessed, and expected to pay the full penalty of his crime; but his friends would not let him do so. "The blood of Christ" *does* "cleanseth from all sin;" and after this "cleansing" the veriest sinner may don the "beautiful garments" of righteousness, and stand unblushingly "with the white-robed throng."

If the people of Ohio (or any other State) who have sold their votes feel conscience-stricken and seem inclined to confess, by all means let them do so, and give them every possible encouragement to pay the full penalty of the law that they may once more "put on the beautiful garments" of righteousness that justly belong to every law-abiding man, and then shall come that grand millennium when "God's kingdom" *shall* come, and his "will be done on earth as it is in heaven."

#### THE SEARS AUTOMOBILE UP TO JAN. 20, ETC.

A few days ago I ran my machine up to one of our three repair shops, where several high-priced machines were standing about waiting for three busy men to get time to look after the troubles, when the owner of one of these fine cars called out:

\*The Cleveland *Plain Dealer* has for several days past mentioned that the "searchlight" was just now being turned on Danville, Ill., in regard to the matter of illegal voting. Here is a clipping from the daily of Jan. 24. Note that part of it referring to the celebrated Speaker's "raiment!":

The little Illinois city that has attained fame as the home of the great American czar now makes its bid for a notoriety that will surpass the ill fame of our own Adams Co. Unless the power of the federal machine is great enough to intimidate judge, prosecutor, and grand jury it is evident that the disclosures in Vermillion Co. will be far more interesting than the stories that have been coming out of West Union.

To begin with, Vermillion Co. is a famous place. It is the place where resides Joseph G. Cannon, the tyrant who has so long dominated the American government. In the second place, it is a populous and prosperous community. Adams Co. has never been the home of a great man, has no cities nor important village, and bases its claim to celebrity solely on the possession of the "serpent mound" — constructed by the mound-builders before the vote traffic had become prevalent. Adams Co. may live in memory as the pioneer; but its show of wickedness will doubtless soon be outlived.

If Mr. Cannon escapes from the mire with raiment completely clean, many observers will be greatly surprised. This aspect of the affair is, after all, the most interesting. If corruption has been as nearly universal as is indicated by the initial developments, it seems impossible that "Uncle Joe" could have been repeatedly elected to congress without having voluntarily or unwillingly benefited by the accepted practice. The disclosures may prove to be one more push downward for the falling dictator.

"Why, hello, Mr. Root! I thought your machine never needed to come to the repair-shop; what is the trouble now?"

"There isn't any trouble with my machine, and never has been any trouble with it."

"Well, why do you come here, if there is no trouble?"

"I came to see if I could not sell these fellows my old machine. I have no use for two."

When I told Mrs. Root about it she expressed a fear that I had given our new machine almost too good a write-up, and asked if I really ought not to mention the various things Wesley and I had done to *keep* it in such good trim; and I am, therefore, going to tell you about one thing we did that I think may be helpful to many of you.

The regular price of our car, \$475, did not include a speedometer, so I had one added at an expense of \$15.00; but after we had used it a while I found it was not working. Investigation showed the little wheel was not in touch with the gears on the front drivewheel. Well, although I could not make out how this got out of mesh, I loosed the bolts and set it up once more in place; but it was soon off again as before, and a more careful scrutiny revealed that the whole front wheel was sliding off from the steel skein that rests on the roller bearings. This steel skein was probably forced into the hub of the wooden wheel by powerful pressure; but, notwithstanding, it had been gradually working off. I might have taken it to a carriage-shop; but the wheels all ran so beautifully nice and true I feared to have the average repair man touch them. See the letter on page 56, Jan. 15. This is what I did. I took the wheel off; and, after carefully wiping off every bit of grease and oil, I placed a common coal-oil lamp so as to have the chimney just under the hole through the wheel when it was supported horizontally. In about an hour the whole center of the wheel was hot enough to make the wooden hub smoke a little, and hot enough to melt some roll brimstone held against this same steel skein. While doing this we turned the wheel over and let the flame of the lamp come under the wheel from the opposite side. In this way we "coaxed" the melted brimstone down between the wood and the steel, and thoroughly saturated the hot wood with the sulphur. Perhaps you are not all aware that brimstone, like water, has the queer property of getting larger when it changes from a liquid to a solid; and it also has the property of sticking with wonderful tenacity to wood, metals, or any thing else when both the article and the brimstone are sufficiently hot. Now, some of you may say (as Mrs. Root did), "How do I know this wheel will not still work off again in time, in the same old way?"

Listen: When I first got my first Oldsmobile, seven years ago, one of the drivewheels got loose in the hub in much the same manner; and before we discovered the mischief



the skein had turned clear around in the wooden hub and cut it out badly. I took it to several shops, but they all said it was past fixing. I wrote the Olds people and they were fair enough to agree to furnish a new wheel in case I was unable to make it hold in any way. Well, some of our good mechanics rather laughed at me when I told them I was going to fix it with "brimstone." We heated a big bar of iron up to white heat and held it inside the wooden hub until the grease was all burned off and the bruised and battered wood almost burned to charcoal; then we wedged the skein in its proper place so the wheel ran true, as it did before the damage; poured in our brimstone when all was quite hot, and that wheel has done wonderful service for five or six years, running many thousand miles, and is as solid and strong to-day as it was when I "toggled it up with brimstone" nearly half a dozen years ago.

I have taken all this space to describe the process, because you can repair many things about the house and farm in this same way. If you have trouble with tools, knives, etc., coming loose in the handles, brimstone applied as I have directed will do the business. It is ever so much better than rivets or wedges, for there is no "wiggle" to a brimstone joint. If you wish to fasten metal posts into stone, brimstone is the thing.

It occurs to me in closing, that perhaps a little more *brimstone* injected into law enforcement, in some parts of *Ohio*, might bring about some important reforms, and help them to "hold fast" a little better in the years to come.

Just one thing more: On page 55 for Jan. 15 I mentioned getting the engine started by dropping a little gasoline in one of the cylinders, but was afterward advised by the makers that such a plan burned out the lubricating oil, and was not to be recommended. The directions (with the car) mention a "priming-wire," and I found a wire that I supposed was for this "priming," but afterward discovered the priming-wire was omitted when the machine was sent off. After I supplied the missing wire the engine started, even on a cold morning, without any trouble whatever.

#### SUNDAY PAPERS, E. G. LEWIS, ETC.

*Mr. A. I. Root.*—As a reader of Our Homes I make bold to write you. I find many helpful things in your sermons; but I am just wondering why you do not give a sermon on the "funny sheets" of our Sunday and daily papers as to their ruinous effects upon the children of our land. I am astonished when I see people of apparent refinement reading those "sheets," and deliberately teaching children to do so. I am a teacher, and probably able to judge more of the evil than most people; but I certainly feel something should be done to make such unpopular.

I have been much interested in what you have had to say about E. G. Lewis and his "League." I am a member, "full paid," of the League, and altogether have forwarded him about seventy dollars.

But I have just been wondering what my duty might be. To tell the truth, I have lost faith. But I, too, feel that the good that has come to me

indirectly from my connection with this affair is far more than fifty-two dollars' worth. Indirectly I have been able to earn nearly \$1500, which I could not have done had I not been a League member. The incentive came through the League.

I am taking the "dress-making course," and I find it *all* they claim for it. I can follow it minutely, and am learning to sew. There are several other courses I should like to take. But the question with me is, Should I, feeling as I do regarding Mr. Lewis, go on? I have paid for them. I am satisfied with treatment received, and have been benefited thus far. Now, what do you think one should do, you who are experienced in the world's ways, and a good judge of right and wrong?

It was the educational feature of the League that led me to enter it. I never expected to get rich, nor even to get *all* that was promised.

I enjoy reading your experiences with poultry. I am also interested in that.

With best wishes for you and Mrs. Root, and trusting you may reach your one hundred years, I am  
MRS. JESSIE BAIRD.

Elm Grove, W. Va., Oct. 21.

My good friend, I have been pained for years whenever I have picked up or examined one of the average Sunday daily newspapers. I wonder, as you say, why parents can be willing to submit such papers to their younger children, who are just looking about and grasping every thing that comes along, especially the sensational things. I have wondered how good careful parents should want their children to look at even the pictures—that is, the greater part of them. One would naturally suppose that the Sunday paper would be at least as truthful and as dignified as the average daily. But I have several times commented on the fact that the very worst and most mischievous things somehow seem to find a place in the Sunday daily. During the St. Louis exposition a daily came out giving an account, with pictures, of the different flying-machines competing for prizes. The statement was given with date, residences of the inventors, etc., in such a way that I was myself completely fooled. I submitted it to the Wright brothers, and they at once informed me that no such machines were on exhibition at St. Louis, and never existed at all except in the imagination of the reporter who was *paid* for "telling lies," and perhaps paid *extra* for doing it *on Sunday*. If parents would refuse to let these papers come into their homes the publishers would probably drop them on account of a lack of patronage.

I am very glad to get so good a report concerning the Lewis Woman's League; but I am glad, *also*, that you have refrained from making a further investment.

#### SABBATH DESECRATION; A KIND WORD FROM THO. WM. COWAN.

Please let Mr. A. I. Root know how much I appreciate the article on page 703 of GLEANINGS, and am so pleased that he makes such a firm stand against the Sabbath desecration that is getting to be so common. We have also remarked the number of accidents that have taken place on a Sunday; but the people do not see the hand on the wall, and it will require an earthquake to rouse them.

THOS. WM. COWAN,

Upcott House, Taunton, Eng.

## Temperance

### THE TEMPERANCE ATTITUDE OF GLEANINGS.

While kind letters for the Home papers, especially the temperance articles, are matters of daily occurrence—in fact, we often get several of such in one day—once in a great while we meet a bee-keeper who is not in sympathy with temperance nor with the temperance wave. I think it must be almost if not quite a year since we have had a letter like the one from the good brother who sends the following:

I just have received GLEANINGS for Oct. 1, and I have read your article on page 637, and have seen that you are a strong prohibition man. That is enough for me, and therefore send me your paper no longer—not at all, not even a sample in future, for I read no prohibition paper. I never any more will see a number of your paper. Keep your prohibition paper for yourself. My subscription is just out Oct. 1. I will be a free man, not bound by prohibition. Do you understand that? Respectfully,  
Altus, Ark., Oct. 6. JOSEPH GLANZMANN.

My good brother, while I believe in and teach State-wide prohibition, I do not at present belong to the Prohibition party. As I understand it, the spirit of our great republic is to let the majority rule. If the majority in any community want saloons, I suppose they can have them or should have them, as things are at present; and if the majority prefer to have no saloons in their midst or in their county, surely they should be permitted to vote them out, and in a like manner if the people of a whole State should decide that they want no liquors nor liquor-traffic in that State, surely the people should have the privilege of debarring them. I know that you people often urge that it is unfair to make a large city dry when the people of that city or county by a majority decide to have it dry. Now, this question is too large for the pages of GLEANINGS. I will only suggest, however, that where a county has to bear the expense of the asylums and infirmaries that are mainly peopled because of intemperance, that county or State should certainly have the privilege of overruling any county-seat or great city. Please consider that the liquor-trade is *not* an industry that builds up *any* community. Am I not right? May God help you, dear brother, to look at this whole matter squarely and fairly and without prejudice.

### ANTS, AND HOW TO GET RID OF THEM, ETC.

In my hand is Bulletin No. 207, from Berkeley, Cal., on the control of the Argentine ant. This ant has proved to be so destructive in some parts of California that it has decreased the value of residence property from 10 to 25 per cent. In California there are about 40 separate colonies, from one acre to nearly 2000 in extent. These ants have already proven to be exceedingly troublesome to bee-keepers; and this bulletin says the directions for their extermina-

tion will apply to all other varieties as well as to this Argentine pest. We copy from the bulletin as follows:

#### WATER BARRIERS—CRESOL.

Perhaps the best-known method of barring ants out is the water barrier, such as is secured by setting the table legs in cups of water. This is effective against most ants; but the Argentine ant has no difficulty in crossing water. Oil they can not pass, but it is objectionable. We have found that the addition of a very small amount of cresol, just enough to make the water milky, renders water effective. The odor of cresol disappears in a day or two, and the water will continue effective indefinitely. The cresol has germicidal qualities that prevent the water from becoming foul. Indeed, the cresol water makes possible the development of a system of ant-proofing that is thoroughly practical and efficient.

#### DESTRUCTION OF NESTS WITH CARBON BISULPHIDE.

In the above description we have referred to the use of carbon bisulphide for the destruction of nests of ants. In all the species where there are large nests with a single opening this is by far the most satisfactory treatment. The plan is simply to pour down a few ounces of carbon bisulphide, either in the natural openings or in holes made by thrusting in a crowbar and covering every thing with earth. The gas formed by the evaporation of the carbon bisulphide effectually destroys both young and old. This method can be applied to any species where the nest can be discovered; but in the case of the Argentine species it becomes the least valuable of any method, since the nests are usually scattered almost everywhere over the whole surface of the ground; and the treatment, to be effective, would have to include the entire ground space for acres about the house one intends to protect.

#### ARSENICAL POISONING.

We obtained by far the best results by the use of a very weak solution of arsenic and syrup. Most of the commercial ant poisons commonly known as ant pastes consist of arsenic and syrup, but are made very strong in arsenic. This kills the foraging ants almost immediately. We found by reducing the arsenic to between one-fourth and one-eighth of one per cent they would take large quantities of the material to their nests and feed it to the young, and the whole nest would be killed by a slow poisoning.

The most convenient way of exposing the poison to the ants is to use a large jar with a perforated cover, and within it place a sponge saturated with the arsenic solution. The ants will enter through the perforations in the cover, fill themselves with the arsenic solution, and carry it to their nests. The sponge will hold enough poison to require two or three weeks to empty it, and before that time the ants will almost entirely disappear.

The number of jars to use will depend upon the abundance of ants. In the worst cases half a dozen jars will serve for an ordinary private house and lot; and if the ants are not very bad one jar may be enough. In such cases it is well to place it in the pantry or kitchen.

The same remedy can be used for all the native species of ants, and will be more effective against them.

There is one species of ant that is exceedingly troublesome on the island of Osprey, Florida. The only remedy we found was to keep chickens enough to keep them down. Unless the chickens are permitted to be constantly around the hives, these ants will sometimes destroy strong colonies, and they do it almost in a night.

In regard to its attacks on bees we extract the following:

Its insidious attacks upon bee-hives has, at least in one instance, put an amateur bee-keeper out of business, and in two cases that have come to our attention have become an equal menace in aviaries by the attacks upon the nestlings; and, indeed, there is considerable evidence that they will have an appreciable effect upon native wild birds in the same way.